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CURE – a companion for the design of collaborative gamification services

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Use of games and existing state of the art gamification frameworks to create a companion for designing collaborative gamification services.

Keywords; collaboration, gamification, game mechanics, user motivation, collaborative software, collaborative user experience

Abstract; User collaboration is a goal for many business applications today, and they are often faced with challenges motivating users to voluntarily engage in providing information and/or take part in collaborative activities.
Multiple approaches have been initiated to face these challenges and gamification is a possible method to address these problems. Gamification uses elements from computer games as part of its process, but actual games are rarely used as a source of inspiration for designing such services. At the same time many computer games today can boast with extensive and elaborate collaborative activities and as such should a natural source of inspiration for such an endeavor.
This thesis presents a design companion created by taking key concepts from such games and combining them with state of the art gamification frameworks, the purpose of which is to create collaborative user experiences.
Five gamification frameworks are being evaluated, including 6D Framework, Octalysis, SGI, Loyalty 3.0 and the Lens of Intrinsic Skill Atoms.
The main contribution of this thesis is CURE – Collaboration, Users, Rewards and Experiences.
CURE is supporting the hypothesis that it is possible to find an approach to gamification services for systems with user collaboration, which takes advantage of the characteristics of collaborative gaming. CURE has been validated with two business application case studies on open innovation and on biodiversity monitoring.

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1 Introduction

User collaboration is a goal for many business applications today, and they are often faced with challenges motivating users to voluntarily engage in providing information and/or take part in collaborative activities (Ellis, Gibbs, & Rein, 1991). For digital technology the interdisciplinary field of computer supported collaborative work (CSCW), is a possible approach to address such challenges. But as "an endeavor to understand the nature and characteristics of cooperative work with the objective of designing adequate computer-based technologies." (Bannon & Schmidt, 1989) one begs to question if there already exists some activities that are already motivating people to cooperate?

In January 2014, 7548 people invested 22 hours of their lives, in a collaborative confrontational event of epic proportions (Moore, 2014). The massive multiplayer online roleplaying game (MMORPG) EVE (CCP, 2003) was witness to a massive battle between its players that rallied together within a very short period of time to help out their teammates and fight other teams of players. To motivate players to be ready for such a battle as well as be willing and able to collaborate with their team members requires an enormous amount of planning as well as coordination during the actual battle. There are very few business activities, or systems for that matter, that can muster this kind of manpower within such a short time frame and enable as well as motivate them to collaborate at this level.

Contained in such games, and other software used in conjunction with it, are complex collaborative systems to both plan and execute such activities. In addition to the software itself a wide range of social structures and communication techniques are in use and combined they make for an impressive toolbox. Could the combination of game design and other relevant tools, used in such games to create the foundation for motivating and enabling its players to collaborate, hold the key to designing user collaboration systems?

In the last decade the term gamification (Terrill, 2008) has appeared as an approach to merge business systems and games for business purposes. As many computer games today can boast with extensive and elaborate collaborative activities they are a natural source of inspiration for such an endeavor.

This leads us to question if it is possible to take advantage of gamification in general and collaborative gaming in particular to design collaborative gamified systems?

An approach for gamification systems focusing on user collaboration is possible.

By taking key concepts from collaborative games and combining them with state of the art gamification frameworks, this thesis will present a design companion that will make such collaborative user experiences possible.

1.1 Problem definition

The primary problem this thesis addresses is to find a solution where two or more users engage in playful interactions to progress with an artifact of a certain

topic or in a context where collaboration is required, or uses game mechanics to give the players a collaborative game experience. The foundation for this introduces collaboration as a part of its experience, where the player through their interactions, the progress of game artifacts including their timeline and end result, contains value to the stakeholders.

All gamification systems aim to engage multiple players, and in most cases the players relate to other players as a part of the game experience. Some systems (reference) also introduce collaboration, both as a competitive component but also in a purely social context. Somewhere between gamification, social media and CSCW there exists a potential for collaborative gamification. The motivational and entertainment values from games and gamification, the social relation from both a psychological and interactive perspective, used to build a companion that holds value for both areas with possible overlaps into the field of CSCW.

Most of the success stories refer to application that have a temporary success or that were never meant to survive beyond a specific timeframe. When using WoW and EVE as inspiration it is not only because of the collaboration present in them, but also because they have survived for many years. By constantly adding content and balancing the game based on game data and player feedback, as well as releasing major upgrades of the game when making major additions and changes. In addition to this they have an active player community contributing to both the game with UGC and the social aspects surrounding it (Wiki, fan-sites, game guides etc).

1.2 Scientific methodology

The research method for this thesis on the design of collaborative gamification services is based on the method for technology research (Solheim & Stølen, 2007). There are three steps defined in this method of research for generating a new artifact, or in this thesis a design companion. The three steps introduced for technology research are:

1. Problem analysis.
2. Innovation.
3. Evaluation.

1.2.1 Problem analysis

The problem definition has already been explored in 1.1 and this thesis aims to identify important and relevant components for a collaborative gamification service. Once identified the intention is to evaluate these and resolve how they be best applied to a gamification service to enhance its collaborative potential.

This thesis intends to investigate existing relevant background materials with the goal of finding such components. This includes background materials relating to gamification, but also on research into actual multiplayer online games and other suitable areas that can contribute insights into collaboration in similar areas. Then comparing these components with five state of the art gamification

frameworks to identify an approach that will promote collaboration in gamification services. The goal is not to design an entire framework, but to seek out options for how existing frameworks can enhance their process with components that promotes and enables collaboration in a gamified service. The companion will focus purely on the components identified with the intention of improving them for use as a tool for gamification frameworks to create collaborative gamification services.

The thesis hypothesis is:
It is possible to find an approach to gamification services for systems with user collaboration – which takes advantage of the characteristics of collaborative gaming.

1.2.2 Innovation
Based on the identified components and their potential of improving existing gamification framework's ability to design collaborative gamification services, a design companion will be developed. Its primary objective is to promote collaboration between the users of the gamified service and motivate them to engage in collaborative activities.

1.2.3 Evaluation
To evaluate the companion it has been used to create a proposal for two case studies. Their stakeholders have then evaluated their respective proposals and supplied feedback to the companion. This feedback has then been used to evaluate the companion and review its potential for supporting or opposing the hypothesis. The values of the components identified from collaborative gaming have also been reexamined due to their elevated significance to the hypothesis.

1.3 Data gathering
The primary strategy for data used in this thesis is triangulation (Jick, 1979; Y. Rogers, Sharp, & Preece, 2011). Initially used for social sciences it is also been used for data gathering for interaction design purposes. By mixing qualitative and quantitative research, data has been gathered through the use actual game play documented as a diary, state of the art gamification frameworks to identify key components and the feedback from primary stakeholders in two case studies to evaluate the companion. Each of these represents a different perspective from the user by observing players in collaborative gaming situations, to the designers by using their frameworks and finally the stakeholders. The initial two sources are used to generate the companion and the third source is used to gain initial feedback on the outcome from using the companion to modify their systems.

2 Background

Balancing the curriculum for this thesis is complex as there are so many academic topics in play; gamification, games, play, psychology, social sciences, CSCW, human resource management and statistics to name the primary fields of academia chosen to comment on either areas of importance or used as an important source to design the companion presented in this thesis.

2.1 Games

The main inspiration to write this thesis, to make use of gamification as a method to motivate and enable collaboration, comes from actual computer game experiences. What was initially just a passing thought became a chain of questions and ideas as to how computer games and game play contain useful elements beyond their initial entertainment values. This realization was not a radical new line of thinking, Jane McGonigal already made a good case for games being able to 'save the world' (McGonigal, 2011b). It is with the introduction of collaboration that things get interesting. Estimates from 2014 place the number of people with internet access close to 3 billion and the number of computer gamers at 1.775 billion (Newzoo, 2014). This number represents how many players out there with a basic knowledge of how computer games work and the pool of users that can easily be introduced to a gamified system.

Collaboration in computer gaming exists in multiple variations today, ranging from small team based games and growing into the massive multiplayer online games. It is common to look at two different concepts for collaborative gaming that seem to be able to motivate gamers beyond what one would expect. They are often referred to as PvP (player versus player) and PvE (player versus environment – in this case the game world and its virtual content). Although there are variations of these two, these are the two terms representing the most important concepts when understanding cooperative gaming. Both concepts scale from small to massive teams, but with one significant difference. PvP is also highly competitive, while PvE is mostly purely collaborative. Even if collaboration is a central element for both, the addition of competition adds certain negative aspects (see Octalysis framework below), which can easily be avoided. The statistics also show that collaborative gaming is the direction the industry is taking, and there is a growing trend of social and collaborative games (Kim, 2012).

As the focus is on PvE it is natural to mention World of Warcraft (Blizzard, 2004) (WoW) and its team activities as it is still considered the largest MMORPG game with over 50 million registered player character in the US and EU alone (Realm_Pop, 2015) (the number of subscribing users is substantially lower as most users will have more than one player character). When launched the game had challenges that required its players to team up with 39 other players whom would spend several hours during a game session collaborating to overcome challenges within the game. This form of collaboration is widely referred to as 'raiding' and is common in many MMORPGs today, but most games have cut down from large to smaller teams. WoW today using 10- and 25-man teams for their 'raid' challenges rather than the 40-player teams they initially introduced. This type of gaming represent a level of player commitment and willingness to

collaborate witch is higher than what is normal elsewhere in society today. Contained in such games and other software used in conjunction with them are complex collaborative systems used to both plan and execute such activities. They also utilize a wide range of social structures and communication techniques that together makes for an impressive toolbox. The combinations of game mechanics, and other tools used in these games, create the foundation for motivating and enabling its players to collaborate holds an enormous potential for enhancing user collaboration in a non-game application or service if they can be successfully applied in a gamification system.

2.1.1 Playing as research

When analyzing games, there are multiple methods to go about such an endeavor. From analyzing third party observations, observing game play outside or inside 'the magic circle' and actually playing the game. The data in this thesis has been gathered through actual game play to gain insight into both the game itself and the virtual environment as the players experience it. Stenros recently presented a strong argument for the need to play to understand gaming (Stenros, 2015), and for this thesis focusing on understanding the collaborative aspects of such a game experience. The question of bias or being unable to remain impartial has been considered and with the conclusion that the additional data from actual game play is easier to identify and recognize when able to immerse with both the game as well as the collaborative experience gained through interacting with other players. The research into game play for this thesis has been recorded in a diary (Bolger, Davis, & Rafaeli, 2003) based on casual observations with no direct reference to any specific player or user. The diary includes several observations relevant to motivational and collaborative game mechanics.

2.1.2 Key observations

Once a user enters the game the user becomes a player. But to enter the game environment the player has to choose an avatar that will represent the player in this environment. The player avatar itself has little value as to how the player is able to interact with the game environment, but the role it represents influences the game mechanics that are available to the player. As such the avatar is mostly an esthetic and visual component that seems to motivate players into immersing themselves with the role this avatar has chosen. From a collaborative point of view this selection of roles is a component of immense importance as it both promotes collaboration but also makes balancing the game more difficult. Game designer Schell refers to this way of balancing a game as asymmetrical as the players do not have identical abilities and functions in the game (Schell, 2014), and suggests possible solutions as to how balance might be achieved. The more complex the roles are, the more work is required to ensure proper balance between players.

Inspired by the massive collaborative games players choose different roles both because of their differences within the game environment but at the same time their function in a team situation. 'Raiding' is usually made up of a certain mixture of such roles to enable the 'raid' to survive and accomplish difficult tasks requiring planning, coordination and intense sessions of game-play lasting several hours. These game challenges are impossible for individual players;

collaboration is required. This thesis recognizes roles as a component of high collaborative value for any gamified service.

For 'raids' to work tools for connecting players to take on such challenges also promote collaboration, adding coordination and communication to enable proper planning. The need for communication continues into the collaborative game play when players and their roles take on 'raid' challenges, and a high level of cooperative game play is also required to succeed. And if the 'raid' completes a 'raid' challenge the rewards are also considered more valuable than most other game rewards. But here is a catch as there are never enough rewards for all members of the 'raid'. A certain level of trust exists between the players in such 'raids' and a mutual understanding that the 'raid' will take on the same challenge next week (the reset timer for many MMORPGs is on a weekly schedule) so that all 'raid' members will have a chance to get their reward, or 'loot' as it is often referred to. Multiple components aimed at enhancing the players abilities to collaborate, as well as the importance of rewards, is at this stage also recognized to have a high collaborative value for any gamified service.

No matter the motivations for players to invest their time socializing with other players like this, it results in a collaborative experience similar to that of team sports. But different with regards to several aspects of how the team plans, interacts and communicates. And most importantly the primary goal is not to compete but to collaborate. In addition to the difference in goals it can be said that the rules are enforced much tougher in a game environment, but at the same time there are several components in such games that have little to do with the game itself. They are purely there because they are 'fun'. These observations are recognized as important, but are more difficult to describe.

2.2 Gamification

Since the appearance of the term 'gamification' there have been multiple definitions presented making it hard to navigate as to how to understand what gamification really is, as well as how and where it can or even should be used. This also seems to be what many of the gamification experts offer as part of their service. Some working with their own software to introduce their gamification services, while other go even broader and look at gamification as a tool to infuse "Gamification is a business strategy which applies game design techniques to non-game contexts to drive user behavior" (Lands & Bédard, 2010b). Several other attempts have been made to define gamification, and to evaluate their differences and similarities the following are some that are commonly referred to;

- "a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation." (Huotari & Hamari, 2012).
- "the use of game design elements in non-game contexts." (Deterding, Dixon, Khaled, & Nacke, 2011)
- "the application of gaming metaphors to real life tasks to influence behavior, improve motivation and enhance engagement." (Marczewski, 2013).

- "…taking game mechanics and applying to other web properties to increase engagement. (Terrill, 2008).

This thesis subscribes to Huotari and Hamari's definition due to how it connects the game with a provided service rather than a task or strategy that drives user behavior. The indications of how gamification is used or introduced always contain elements that either relates to either personal or service goals, and where no entertaining game experience is implied. And the main reason for implementing gamification is to achieve this engaging and motivational experience that is most commonly found in todays computer games. One could place a gamification experience somewhere between a service goal and a pure game experience (see fig. 1), but at its core we are also looking at playing and gaming also beyond the digital world.

2.3 From playing to gaming to gamification

Gamification as a concept draws most of its values from games. Looking then at the definition of a game (Juul, 2005; Salen & Zimmerman, 2004) to better understand gamification and exploring the present state of the art within this field of study, it seems chaotic at best when it comes to conceptualizing games (Stenros, 2015). This brings us to play, a term often referred to as a foundation for games. Roger Caillois proposes that their difference is a gradual one and not strict (Caillois & Barash, 1961), where 'ludus' (games) has more structure and is more uniform between play sessions 'paida' (play) is more free play, thus making the slider (see fig. 1) between game and fun. With this interpretation in mind gamification can also have a certain degree of play involved in addition to its game elements? And although gamification also contains building blocks from other areas of academia, it is compelling to seek some basic building blocks from both play and games that would also be relevant for gamification. It would seem to be a requirement in itself to keep the 'fun' in the game as Werbach and Hunter (Werbach & Hunter, 2012) refers to it.

'The magic circle' (Huizinga, 1944) is a term coined by Huizinga and often used today to describe the border where a person changes into a player. In terms of gamification this becomes relevant in several ways. It is a useful term to use to understand the border of a gamified solution where a user also becomes a player and that adding this virtual space to their life is a rewarding experience. Once inside 'the magic circle' the player will be free to engage in activities and processes resulting in multiple possible outcomes. It would also seem crucial that a player is never forced or tricked into doing or performing certain activities – these must always be something the player chooses to partake in. From a gamification point of view it is the data from these activities, processes and outcomes that can be taken out of 'the magic circle' and applied to a non-game objective. For the stakeholders this harvested non-game data is most often directly related to a business or service objective. Being open about this harvesting of data will help establish trust and loyalty between the player or user and the stakeholder.

Inside this 'magic circle' there is also a mutual agreement and understanding between the players, and in the case of gamification this also includes the

stakeholders, regarding how the game will be played with its rules and balance. Commonly most games introduce a transparent set of rules that are equal for all players and a balance between player and other players as well as player and game. If there exists differences in rules or balance between each individual player, they are aware of and subscribe to these differences as part of the game. The player should experience rules as incentives to interact with the system and the other players, rather than restrictive or deceptive. With multiplayer games today one of the major issues game companies have to deal with on a day-to-day basis is balancing the game. If a game is perceived as unfair or unbalanced players are less likely to invest their time with it. Introducing activities that lets the player influence how this balance is achieved lets all parties, game designers and stakeholders alike, to participate and share the responsibility of upholding this balance.

At this point it would make sense to add play to the equation and look at a gamification service as an artifact existing somewhere in the triangle containing play, game and service goals as its corners. As an example let us take a look at an extremely simplified 'game'; in the middle of a computer screen there is a button, and above the button is a counter that counts the number of times the player clicks the button. Placed in the pyramid this example scales play, game and goal towards an absolute minimum, but is easily enhanced with small changes. Adding more rules to increase the game component; double clicking the button will give you a bonus score, or following a button-clicking indicator will change the score according to how you match the indicator. Adding more play value by allowing the player to change the color of the button. Or adding goals by adding a public high score list. This model scales these components against each other as well as indicates their complexity and is a simplistic representation of the game experience the gamified service is delivering to their players.

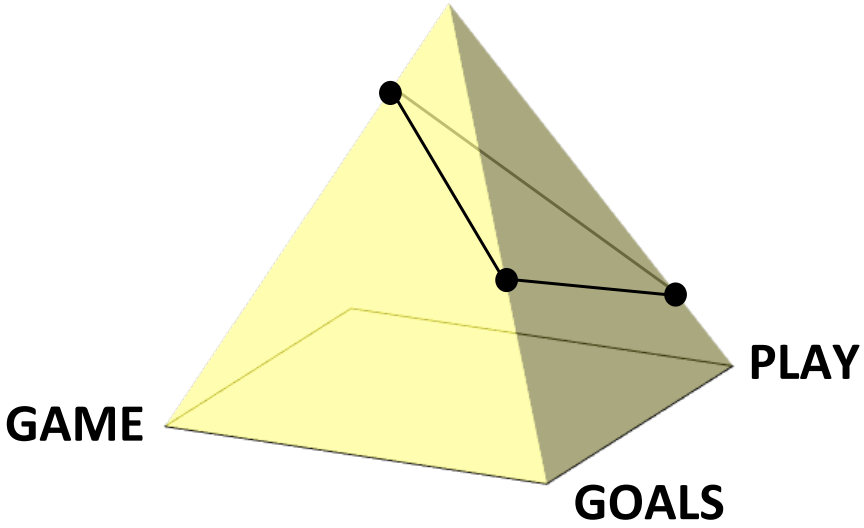

Figure 1 Player experience based on play, game and goals

2.4 Exploring gamification

As a concept gamification has received both positive and negative attention since its appearance. Positive references include early success stories where

gamification played a major part, and it had an explosive impact in the business market through its media attention. Services like the location based social network Foursquare and the innovation service Idea Street and others suggested that gamification had the potential possibility of succeeding where other solutions struggled. And the positive impact of these services did not go unnoticed, and already in 2011 Gartner predicted that "by 2015, more than 50 percent of organizations that manage innovation processes will gamify those processes" (Gartner, 2011), also referring to the Idea Street solution. But already the year after in 2012 they also predicted that that "80 percent of current gamified applications will fail to meet business objectives primarily due to poor design" (Gartner, 2012). Thus there was the possibility of success, but it would require more work than just adding a few game mechanics. The hype also laid the foundation for businesses like Bunchball and Bagdeville to appear and continue to produce gamification services with positive results.

Negative impact is primarily rooted in exploitive marketing and persuasive games. Ian Bogost has referred to the term as yet another marketing ploy and referred to gamification as "exploitation ware" as a more suitable name for the games used in marketing (Bogost, 2012). He has also suggested that gamification is just an extension of existing ideas in marketing like loyalty programs, and video games represent a new domain for persuasion he refers to as "procedural rhetoric" connected to rules and interactions (Bogost, 2007).

Game designers like Jane McGonigal has distanced her work from the label gamification, and mostly refers to it in a negative context (McGonigal, 2011a). Sebastian Deterding has also chosen to use the term "gameful design" in his latest design framework and specifically avoiding the term (Deterding, 2014) while also keeping a positive attitude toward gamification – if it is done right (Deterding, 2011). Even so there are multiple gamification systems that have had positive and constructive results (Hamari, Koivisto, & Sarsa, 2014).

Although it is founded in play and games, gamification also includes many other fields of study such as big data, statistics, behavioral economy, marketing and motivational psychology (Paharia, 2013). Add to this the fields related to the goal of the gamified service itself such as innovation or location based social networking as mentioned earlier, but also areas like other types of social networking, commerce and customer relations, education, self development and coaching, intra-organizational systems, employee performance, data gathering and survey management (Burke, 2012; Hamari et al., 2014; Herzig, Ameling, & Schill, 2012). Thus establishing methods or guides for how to design gamified services has had to limit their priorities to what makes gamification unique.

Most of the existing frameworks for gamification design have three categories used; game mechanics are the building blocks of gamification and often presented in longer lists; motivations that guide users to invest in such a gamified service and finally steps to help in the design of a gamified service. Game mechanics are not fixed and can often be presented in extensive lists such as Gamification.org (Lands & Bédard, 2010a) and SCVNGR (Schonfeld, 2010). They are the points, challenges, progress indicators and rapid feedback that

when put together in the right way becomes a gamified service. When exploring such game mechanics there is a difference between play, game and gamification the needs to be established. Play referring to mechanics that have no real influence or relation to the game elements in the game and might be considered to have little value to the player beyond its possible positive relation or immersive experience it might induce. Game mechanics drive the game inside the 'magic circle' and covers all mechanics that are a part of the player interactions and system responses, or the rules of play as established earlier. Moving on to motivation consisting of psychological drivers that influence user behavior. This part of gamification is more complicated and discussed as a separate aspect of gamification where these frameworks often refer to similar types of motivation but using different terms to define and explain them and their use. Finally there are the steps that work as a guide for designing good gamified services. From exploring business aspects to analyzing users, and establishing both user and stakeholder goals that also go beyond 'the magic circle', including artifacts and other data that are valuable to the user or stakeholders also outside gamified service. These goals are the reason why the stakeholders designed the service and they why the users want to participate.

2.5 Motivation and the psychology of gaming

A term that continually is mentioned when gamification is discussed is motivation, and specifically how gamification is able to apply game mechanics that are able to engage users and continually motivate them into investing time and energy with such a service. When exploring basic psychological definitions it is the motivations beyond instinct and drives that have been introduced when describing how gamification works. One basic source presents motivation in terms of approach and avoidance, incentives and expectancies and also discusses psychodynamic and humanistic alternatives including Maslow's hierarchy of needs and self-determination theory and the moving on to presenting social and achievement motivations as the two primary categories (Holt et al., 2012). While an alternative similar source mentions "…two major motives that govern our daily activities, namely, our motive to belong to groups and our motive to achieve" (Gleitman, 2010), and also includes self-realization, avoidance and pursuit of pleasure. Thus making our two primary motivators the need to affiliate and the need to achieve. Additionally avoidance and incentives are topics of importance as well as self-realization and self-determination theory.

2.5.1 Achievement

This is the first of the two major psychological motivators that will need to be addressed. In terms of gamification often referred to as 'mastery' with 'progress' as the path the player takes to achieve 'mastery'.

2.5.2 Affiliation

Craig Hill suggests four dimensions for affiliation motivation; "social comparison, emotional support, positive stimulation and attention" (Hill, 1987). Given both the existing presence of this motivation as well as the highly socially related element of collaboration it follows that a gamified solution can benefit from introducing game mechanics to help stimulate these. It is also important to consider the risks avoidance motivation represent at this point. Negatively

loaded affiliation can easily remove any positive motivation received from interactions in a social interface.

2.5.3 Autonomy

Self-determination theory emphasizes on three fundamental needs; autonomy, competence and relatedness as universal motivators for an individuals psychological health (Deci & Ryan, 1985). They are all considered intrinsically motivated in the meaning that they have no external motivators beyond the positive value an individual experience when fulfilling these needs. Again we recognize affiliation, but we also have competence representing our ability to achieve. This leaves autonomy, which is somewhat more difficult to balance when seeking a collaborative solution due to the individual interpretation of the term. In the collaborative context there is also the autonomy of the group working together that can easily collapse with an internal conflict (and has been documented as part of the game diary research).

2.5.4 Incentives

> ”Incentive theories emphasize environmental factors that pull people towards a goal. Expectancy x value theory explains why the same incentive may motivate some but not others.”(Holt et al., 2012)

Incentives in this context can easily be interpreted as the introduction of rewards in gamification services. From a psychological perspective there are two kinds of such rewards; extrinsic and intrinsic where each of them influence an individuals motivation on an intrinsic or extrinsic level. Looking at self-determination theory the solution gamification seeks is the one that stimulates intrinsic motivation, which is primarily achieved through intrinsic rewarding (Deci & Ryan, 1985).

A simple understanding of extrinsic motivation might be as follows;

> “In terms of incentives, a student who studies hard solely to get a good mark (rather than to learn) is exhibiting extrinsic motivation.” (Gleitman, 2010).

When observing the reality in online gaming environments today the situation indicates that the incentives have also gained an extrinsic value that most players are very aware of, and that has resulted in a flourishing black market for such trading. The companies that produce these games have caught on as well and are implementing services to re-gain control over their games and re-establish balance. So within large-scale multiplayer gaming today such rewards, which contain at least a partial extrinsic value, are becoming a normal part of the game experience. Keeping in mind that an extrinsic reward does not necessarily imply physical gifts or currency, but at least a perceived level of ownership of the reward itself, and that it also has value beyond the game itself.

Research on extrinsic rewards and motivation reveal that tangible rewards (extrinsic) most likely hurt the intrinsic motivation that a gamification service aims to introduce. There are exceptions and in this case there are certain extrinsic rewards of an informational nature that can be introduced and not result in dimished intrinsical motivation (Deci, Koestner, & Ryan, 1999). So even though the content of many games today have an extrinsic value attached to them, there are ways to introduce informational extrinsic rewards that do not

hurt the intrinsic motivation of a user. While a stakeholder relies on data generated from a gamified service it is possible to reward users with informational rewards as a tangible reward for investing their time interacting with the gamified service. In this context it represents a reward with extrinsic value to the user based on information the user has generated as a player. Such information can be collected from game play data, from the data extracted by the stakeholders, or both. The key is to avoid making the reward the only motivation for a user to interact with the gamified service. From a game mechanical view this implies that a player is not guaranteed the reward, but rather it is a possibility.

On a different note the stakeholders of a gamification service would prefer to avoid tangible rewards due to the reduction of financial output. They are more likely to be interested to establish rewards that are intrinsic in the context that they do not extract an extrinsic cost. Informational rewards should in principal not introduce any substantial additional costs even if they are considered of substantial extrinsic value to the users.

2.6 Collaboration

Collaboration is a factor in many fields of work and study. From computer supported collaborative work (CSCW) to ideological associations, from collective intelligence to co-op gaming. They are all relevant and likely to contain valuable materials for this thesis. For this thesis certain selections have been made to focus on specific components that are important for collaborative gamification.

Before exploring different forms of collaboration a look at the concept itself seems like a good place to start. Spence presents four models for collaboration (Spence, 2005);

> "a random model and assessment of personal strengths and acuity, a collaborative model based on common interests, and finally a team organized with/among team leaders."

World of Warcraft (Blizzard, 2004) has tools to gain access to certain types of content utilizing all of these models, where players can sign up and find team members based on a specific or a combination of these models.

Another model for building team performance by observing successful teams and their approaches as presented by Katzenbach & Smith (Katzenbach & Smith, 2005);

- Establish urgency, demanding performance standards, and direction.
- Select members for skill and skill potential, not personality.
- Pay particular attention to first meetings and actions. Initial impressions always mean a great deal.
- Set some clear rules of behavior.
- Set and seize upon a few immediate performance-oriented tasks and goals.
- Challenge the group regularly with fresh facts and information.
- Spend lots of time together.
- Exploit the power of positive feedback, recognition, and reward.

Translated in terms of gamification all of these approaches can be introduced through proper use of service requirements and proper service design with a few limitations. Introducing criteria for creating collaborative teams such as skills, potential and personality induces the risk of team conflicts that can have severe negative effects on the gamification service community. Game research suggests that a single negative player can completely destroy a team's ability to perform. Countering such behavior by establishing clear rules is no guarantee for avoiding them. And secondly, never exploit your users. On the positive side both frequent feedback, player recognition on both an individual and team level and rewarding are already natural ingredients for gamification services.

2.6.1 CSCW

Bannon & Schmidt (1989) define CSCW as "an endeavor to understand the nature and characteristics of cooperative work with the objective of designing adequate computer-based technologies." With emphasis on understanding cooperative work as a distinctive form of work (Schmidt 1991) and on supporting these cooperative work forms with appropriate technology (Bannon 1993). This introduces a very useful source of information and ideas into certain areas of computer-assisted collaboration. There has also been conducted research into this area using different methodological approaches that could contain valuable data for related gamification services (Cypher & Richardson, 2006). The most important part of CSCW for a gamified service is the focus on the users and stakeholders' interactions beyond the gamified service. This thesis is aware of this but has not has the resources to address it, but felt it would be ignorant to not introduce it as an important component of a collaborative gamified service. Awareness and understanding these are critical components for a collaborative gamified service.

2.6.2 Project management

Project management is a discipline widely known and used to achieve goals according to specific requirements, which sounds similar to how one would want collaborative gamification to work. The areas chosen to describe collaboration in relation to gamification are responsibility assignment matrix (RACI), fundamental interpersonal relationship orientation (FIRO) and situational leadership model. For the purposes of this thesis their use is different from how they are used in a project, but still useful for identifying components that have collaborative value. These can then be used to strengthen CURE's position as a collaboration companion for gamified services.

RACI (Jacka & Keller, 2009) defines the role of project members relating to deliverables and their responsibilities;

- Responsible; members responsible for delivering
- Accountable; members approve or sign off on a deliverable
- Consulted; members that can be consulted in relation to a deliverable
- Informed; members that are kept up to date or given the ability to track a deliverable

In relation to collaboration this type of matrix allows players to define rights and purpose in relation to the object of collaboration; or collaboration artifact. The matrix used does not need to be identical to RACI, but allowing players to adjust

and allow access and interaction with a collaborative artifact would be similar to how a 'guild' works in WoW. A 'guild' might not be comparable with regards to its purpose, but the introduction of how access is controlled is similar to how a guild ranking system works by allowing the service, or possibly certain players, to define the access of other players that are connected to a collaborative artifact. Be aware that this type of power can be abused and have negative results on the collaborative community and would need to be monitored closely.

FIRO – fundamental interpersonal relationship orientation (Schutz, 1958) a tool for how players are connected, combining belonging, control and relations as key concepts. Although with similarities for how it is used in connection with project management, it has its own uses for collaborative gamification.

- Control is a possible approach for the leadership hierarchy from top to bottom for how players are ranked in relation to each other and collaborative artifacts. It works well with a RACI structure as a way to differentiate players based on their involvement and activity, which in turn can reward players accordingly.
- Belonging is one option to refer to the player journey such as a visitor completely new to the service, someone going through the onboarding stages or someone that has mastered the game. The number of stages introduced is flexible, but fewer stages require more content for the later stages of the player journey to keep these players motivated.
- Finally relations that has similarities to affiliation, but different as it covers how the players can be motivated by connecting with other players socially or through player similarities and differences. The four dimensions of affiliation presented earlier (Hill, 1987) also depends on such relationships and their ability to communicate and compare.

Situational leadership model (Hersey & Blanchard, 1969) in its original form refers to leadership which is a concept one should avoid when collaborating as it creates a hierarchy that gives some players powers to control others. This is not to say that it as a concept can be valuable to collaborative gamification but as a way to interpret the options and interactions available to different player roles. The original model presents a set of leadership styles, which for collaborative gamification they represent a simplified way of describing how player roles also can make use of different player styles. A leader would choose different styles based on the needs of different situations and project members. In a collaborative gamified system these styles would become role abilities and represent how a player through choosing which abilities to use in different collaborative situations, and would be one alternative for establishing what abilities the role has available. Such roles are created so that making use of the right abilities in the right situations combined with other roles with conforming abilities increases the team's chances of success for challenges or other game activities. This type of game play promotes player collaboration, and can be used to direct players to take on challenges in specific ways. In MMORPGs this is an established and familiar system for players to collaborate and also requires a certain level of mastery to be able to take on the more difficult challenges.

2.6.3 Game design

As gamification is directly connected to computer gaming it would be ignorant to not review how game designers work with collaboration. An easy but interesting introduction to collaboration comes from Jane McGonigal who defines it as cooperation, co-creation and coordination (McGonigal, 2011b). She also presents several arguments for why "reality is broken" and games are often able to "fix" this, and presents fourteen ways to fix it. Another game designer advocating collaboration in games, Amy Jo Kim has suggested seven rules for collaborative game design (Kim, 2014) actively avoiding competitive gaming all together and encouraging users to actively contribute to the game through integrating their own components with the game as well as expanding the game community beyond the game through social networks, fan site and other useful web services. Jesse Schell, another established game designer, presents a complete framework for designing games (Schell, 2014) which also includes a deck of one hundred unique 'lenses' that through key questions that touches on every aspect of game design such as "story, game mechanics, aesthetics, psychology, creativity, teamwork, play testing and even business issues". This framework is part of the inspiration for one of the gamification frameworks used later in this thesis, and naturally contains useful information regarding collaboration and balancing roles. The lens of cooperation contains seven questions that are of value to this thesis; opportunity to communicate including enhancements, tools to connect players, player synergy, different roles, tasks that require multiple players or roles and tasks that force communication. Most of these have already been identified to have a positive effect of a collaborative gamified service but summarized they also make a solid argument for communication, multiple roles resulting in synergy when collaborating, tools to establish relations and options to team up with other players to take on challenges that require more than one player or role. Balancing roles does not have a lens of its own, and Schell presents the use of symmetrical or asymmetrical games as a general way to conceptualize games. The symmetrical game lacks the synergy that comes from introducing multiple roles with different sets of abilities or skills to interact with the game system and each other. Thus the asymmetrical game is what would be useful for promoting collaboration. To summarize; certain challenges require more than one player and the correct set of roles to be resolved. The only way to do this is through collaboration.

2.7 Conclusions

Collecting our findings we find four main areas are likely to have a positive effect on collaborative gamification; collaboration, users, rewards and game experience. Each of these requires an introduction, as they need to be understood correctly. **Collaboration** is the umbrella for several underlying areas we have identified; communication, cooperation and the collaborative artifact to name a few. The **user profile** is the umbrella for the player and the roles they choose to enter the game with. There is no doubt that the use of roles is highly likely to have a substantial positive effect if introduced correctly. **Rewards** is less obvious, but the gaming industry as well as early gamification solutions have already made it clear that what happens in the game does not stay there and finding good solutions for what the user can bring with them is a difficult but

valuable source of motivation and a lingering positive experience also when stepping out of the gamified system. Last there is the more conceptual area of **game experience**, which is both a result of the first three, but also a good area to start working on a collaborative gamification service by placing it in the PGG pyramid. The placement establishes where the focus on the gamified service lies and possibly also the direction of future updates and expansions. Including both play and game into the user experience is an important reminder of where this way of designing services comes from.

3 Gamification frameworks

There exists multiple frameworks for designing gamification services, but how would they do when faced with the collaborative areas established and are there areas that could be improved upon?

3.1 Introduction

Five frameworks were chosen for this analysis and tested up against the four areas identified as having a positive effect on a collaborative gamification service. For the area of collaboration the underlying areas of communication, cooperation and collaborative artifact were added as additional requirements. In addition, the primary requirement identified for the user area was the introduction of player roles, which is also included for this reason.

3.1.1 Areas for analysis

A. Collaboration
    a. Communication
    b. Cooperation
    c. Collaborative artifact
B. User
    a. Roles
C. Rewards
D. Experience

Each framework will be scored for each of these areas according to the following criteria on a scale from one to five.

3.1.2 Framework scoring criteria

1. Area is not mentioned and falls outside the scope of the framework
2. Area is not mentioned but is possible to address as part of the scope of the framework
3. Area is mentioned but only as a minor area within the framework
4. Area is mentioned and has a natural place in the framework
5. Area is mentioned in detail and is a major area in the framework

Table 1 Framework scoring chart

Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
#	#	#	#	#	#	#	#	##

Each framework is presented with source, context and a quick overview. They are then introduced to the four areas, identified to enhance the collaborative value of a gamified service, and analyzed as to how the frameworks would be able to address each of them. It is important to note that this evaluation is based purely on the primary elements of the respective frameworks but that the areas evaluated often are a part of the framework when reviewing them in detail. Even so, their introduction as a part of the main framework descriptions is how this analysis evaluates them.

3.2 The 6D Framework – Werbach and Hunter

Taken from the book 'For the Win' (Werbach & Hunter, 2012), this framework is the simplest of the chosen frameworks, but easy and flexible due to its generic setup. Beyond the steps presented the framework is also connected to a game element model consisting of dynamics, game mechanics and components. Each of these contains game elements that can be introduced into a gamified service, but none of which are presented as a requirement or more critical than the others. Motivation centers on self-determination theory and how intrinsic and extrinsic rewards influence motivation and behavior.

3.2.1 The six steps in the 6D framework are:

1. Define business objectives
2. Delineate target behavior
3. Describe your players
4. Devise activity loops
5. 'Don't forget the fun'
6. Deploy appropriate tools

There are no obvious direct approaches for collaboration, or the underlying communication, cooperation and collaborative artifacts, but due to the generic nature of this framework they can all be properly addressed as part of a design process. The framework is based on a game element hierarchy that introduces cooperation as a possible 'mechanic', but neither communication nor a collaborative artifact has similarities with any such 'game element'.

Users are introduced on multiple levels, and elements like relationships, transactions and social graphs are mentioned to allow for a certain level of collaboration. No specific details on the difference between user and player is established, and no reference to the use of roles is part of this framework.

The framework introduces extrinsic rewards as a possible tool to make players do something they would otherwise avoid, but lacks to classify extrinsic rewarding that also introduces intrinsic motivation. Rewards in itself are also not introduced as a critical success criterion, but one of several options on how to introduce 'game elements' into the service.

Finally the framework does not specifically address the game experience beyond the 'don't forget the fun'-step, but it is worth noting that both narrative and emotions are considered a dynamic as part of the 'game element' pyramid.

Looking at where the service exists in relation to the business objectives, the activity loops and 'the fun' is vague at best.

Table 2 Score chart for 'The 6D Framework'

Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
2	2	2	2	4	2	4	2	20

3.3 Octalysis: Complete Gamification Framework - Yu-kai Chou

Yu-kai Chou's Octalysis (Chou, 2013) is a very detailed framework presented as a 'human-focused design' process as opposed to 'function-focused design'. The framework presents eight core drives that motivate, but does not include any definition or science angle for motivation itself. The framework divides these eight drives into two groups; creativity, self-expression and social aspects on the one side and logic, calculations and ownership on the other. It also uses a similar division for positive and negative motivators differing between interacting for enjoyment purposes and for avoidance purposes. In addition this framework also contains an impressive library of game mechanics grouped according to these eight core drives giving it an impressive toolbox for taking on collaborative gamification.

3.3.1 The eight core drives of the Octalysis framework:

1. Epic Meaning & Calling
2. Development & Accomplishment
3. Empowerment of Creativity & Feedback
4. Ownership & Possession
5. Social Influence & Relatedness
6. Scarcity & Impatience
7. Unpredictability & Curiosity
8. Loss & Avoidance

Collaboration as a concept is not mentioned as a direct result of any of these motivators, but when analyzing the underlying game mechanics it is easier to understand where it might be introduced. Add to this that all of the framework's eight core drives are relevant also for collaboration in general, but without a proper set of requirements they will not be of much use. For collaborative gamification all of the tools needed are there, but they are neither easily accessed nor specified for such a purpose.

With its 'human-focused design' there is surprisingly little focus on users themselves, but very clear information on their activities, motivations and experiences. No differentiation between user and player is established. Moving on to the concept of 'roles' it is not mentioned at all, and not even as one of the many game mechanics introduced. Even so, many of the parts that would make up such roles, are suggested as game mechanics belonging to one of the core drives.

Rewards are covered as an underlying part of the core drives, but also an extension of how the two groups are more based on extrinsic or intrinsic motivation. Where logic, calculation and ownership rely on extrinsic motivation, creativity, self-expression and social aspects rely on intrinsic. Thus seemingly connecting each motivation with their respective reward. The framework also promotes the use of intrinsic motivation and rewarding as a better long-term strategy for keeping the users engaged over time. The concept of crossing motivation and rewarding is not introduced and lacks the tactic of using extrinsic rewards to also generate intrinsic motivation.

The framework touches on multiple areas of game experience through its core drives and game mechanics, and specifically factoring in 'four phases' of a player's journey; discovery, onboarding, scaffolding and endgame. A 'ninth' core drive referred to as 'sensation' is also mentioned, but little concerning areas of user experience such as genre or narrative. No connection between goals, game mechanics and play are presented.

Table 3 Score chart for the 'Octalysis Framework'

Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
2	2	3	3	3	2	3	3	21

3.4 SGI – AlMarshedi, Wills, Wanick and Ranchhod

SGI: A framework for increasing the sustainability of gamification impact (AlMarshedi, Wills, Wanick, & Ranchhod, 2015) argues that it has become a challenge to design sustainable gamification systems, and aim to address this issue. Taking the user on a spiral shaped journey where the idea is to never have the user return to the same point in the cycle. Apart from the other chosen frameworks SGI also introduces 'flow' (Csikszentmihalyi & Csikszentmihalyi, 1992), or a mental state of maximum focus and immersion. In this context the framework presents a clear boundary for a gamified service similar to that of a

'magic circle', and where flow is an experience sought by the user interacting with it. A minimum number of design guidelines are included, there is no real focus on game mechanics, and five components, described in detail, make up the core of this framework.

Framework for a sustainable gamification impact introduces five components;

1. Flow
2. Relatedness
3. Purpose
4. Autonomy
5. Mastery

Collaboration as a component, specifically, is not mentioned or discussed as part of the SGI framework, nor is it introduced as a natural part of any of the five components. Social aspects are covered by relatedness, but no interactions between users are implied.

Users are included in all parts of the framework and are based on identifying their purpose, relatedness and competence in relation to the service. No differentiation between user and player is established. The concept of 'roles' is difficult to introduce into the framework due to both the lack of a specific user component as well as the mechanisms for entering the service itself.

Rewards are covered directly in relation to extrinsic and intrinsic motivation, and have a high focus on intrinsic motivation as the preferred option partly due to the focus on 'flow'. Extrinsic rewards are referred to as unsustainable primarily due to the implied extrinsic motivation.

The SGI framework is highly focused on the long-term user experience, and makes a clear case for how each of the five components helps the user follow this path. There is no focus on game experience topics such as genre or narrative. The user experience existing between play, game and the goals of the service, as seen from both stakeholder and users, are not a part of this framework.

Table 4 Score chart for 'SGI'

Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
2	2	2	2	4	2	3	3	20

3.5 Loyalty 3.0 – Rajat Paharia

Based on the framework presented in Rajat Paharia's book Loyalty 3.0 (Paharia, 2013) which also includes case studies in customer and employee engagement as well as skills and learning. The book presents three sets of variables for designing gamification services. Five intrinsic motivations for gaming;

1. Autonomy: I control.
2. Mastery: I improve.
3. Purpose: I make a difference.
4. Progress: I achieve.
5. Social interaction: I connect with others.

Ten key game mechanics for gamification with their respective motivators;

1. Fast feedback (mastery and progress)
2. Transparency (progress and social interaction)
3. Goals (purpose, progress and social interaction)
4. Badges (mastery, progress, purpose and social interaction)
5. Leveling up (mastery, progress, purpose and social interaction)
6. Onboarding (mastery)
7. Competition (mastery and social interaction)
8. Collaboration (purpose and social interaction)
9. Community (social interaction)
10. Points (progress and social interaction)

Finally eight steps representation activities;

1. Identify the problem
2. Identify your audience
3. Identify the desired audience behavior
4. Establish your key performance indicators
5. Create a mission statement
6. Understand the playing field
7. Calculate the return on investment
8. Sell it to internal stakeholders

In comparison with the first three frameworks, this is substantially more business oriented including how it focuses on both user and stakeholder objectives. In addition the choice of ten key game mechanics gives this framework a clear direction as to how it intends its users to interact with the service and what motivations will drive these behaviors. The framework also focuses on statistics, big data and behavioral economics as fields that deliver important data to the gamified service, adds value to the gamified service within 'the magic circle' and producing data that holds value beyond the gamified service itself.

To identify how this framework would perform when designing a collaborative gamified service breaking down the three sets of variables presented is a natural step to analyze its collaborative potential. For the initial five motivations for gaming the change from individual focus to that of a group which in turn changes how these motivations are perceived; autonomy refers to group activities that require multiple players, mastery includes mastering cooperative actions, purpose introduces common goals and only the final motivation is a direct match with social interactions and connecting with other players. Moving to the ten

game mechanics there are only two that require special treatment for a collaborative service; onboarding and competition. Onboarding in a collaborative environment introduces a certain level of coaching, where a collaborative effort from an experienced player assists one or more other players in mastering components within the service. Competition is a challenging topic as it reduces the focus on collaboration and redirects towards competition. As a component with a short timeframe this might be useful, but in general the removal of such mechanics keeps the focus on the collaborative activities. One could argue that any game mechanics with progress or mastery related motivators can hold a certain element of competition, but could also be used to enhance a collaborative game experience for the users. To complete the variables the eight steps representation activities are all collaboration compatible, but as this is a generic framework there is no direct introduction of these activities in a collaborative design process.

Table 5 Score chart for 'Loyalty 3.0'

Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
4	3	4	2	4	2	2	3	24

3.6 The Lens of Intrinsic Skill Atoms - Sebastian Deterding

Deterding's framework (Deterding, 2014) is by far the most detailed and recent of the frameworks introduced for this exercise, making it superior for certain challenges and more difficult to apply for other challenges. Based on Schell's Design Lenses (Schell, 2014) its superior for designing gamified components, but weaker when it comes to business strategies. As the purpose of this thesis it is its collaborative potential this observation is not considered critical.

3.6.1 Design Lenses

"This lens instructs designers to code a design space in terms of meaningless versus meaningful choice. It then highlights as problematic an imbalance of offered choice – an unclear excess and a disempowering absence –, as well as the presence of dominant strategies."

3.6.2 Skill Atoms

Goals: System states the user attempts to achieve. Goals are typically explicitly suggested by the system ("call to action"), but must be actively pursued by the user to be goals.
Actions: What the user can do to approach her goals.

Objects: Entities the user acts upon; their configuration embodies the system state.
Rules: Specifications of what actions the user can take, and how these actions affect the system state. These may be algorithms, humanly enacted rules, physical laws, or a combination thereof.
Feedback: Sensory information that informs the user of system state changes resulting from her actions or autonomous system processes.
Challenge: The perceived challenge the system in its current state poses to the achievement of the user's current goal, relative to her current skill.
Motivation: The psychological need interacting with the system promises (and succeeds) to satisfy; it energizes and directs the user to seek out and (continue to) engage with the system – typically competence.

3.6.3 The Lens of Intrinsic Skill Atoms

In pursuing her needs, any user's activity entails certain inherent, skill-based challenges. A gameful system supports the user's needs by both directly facilitating their attainment, removing all not skill-based challenges, and by restructuring the inherent challenges into nested, interlinked feedback loops of goals, actions, objects, rules, and feedback that afford motivating experiences, competence in specific.

- What motivations (might) energize and direct the activity?
- What challenges are inherent in the activity? (What challenges can be removed through automation or improving usability? What challenges remain that the user can learn to get better at?)
- How does your system articulate these inherent challenges in goals? (How might it articulate them to connect to the user's needs and motivations?)
- What actions does your system offer the user to achieve these goals?
- What are the objects the user can act on to achieve these goals?
- What rules does your system articulate that determine what actions are allowable and what system changes and feedback they result in?
- What feedback does your system provide whether the users actions were successful, and how much progress the users has made towards their goals? (How might you make this feedback clear, immediate, actionable, speaking to the user's needs and motivations, affording a sense of competence?)

3.6.4 Design Steps in Gameful Design

1. Strategy
a. Define target outcome and metrics
b. Define target audience and activity
c. Identify constraints and requirements
2. Research
a. Translate user activity into behavior chains
b. Identify user needs, motivations, and hurdles
c. Determine gameful design fit
3. Synthesis
a1. Innovating mode: Formulate activity-challenge-motivation triplets
a2. Evaluating mode: Evaluate skill atom and generate ideas with design lenses

The structure of this framework makes it challenging to analyze. Rather than the focus on a fixed set of motivators, established game mechanics and design guidelines Deterding mixes them all into the 'skill atoms' as goals, actions, objects, rules, feedback, challenge and motivation. Where the other frameworks specify motivations as a separate component, Deterding has it implemented as a part of his 'skill atoms' (SA). Goals and objects are also outside the game mechanic component and often used as part of the business strategy for the whole gamified service. And finally the actions, rules and challenges are the only objects that resemble what the other frameworks refer to as game mechanics, but rather than establishing them by terms and fixed understanding Deterding presents the design of such components without any prior definitions. There are no real references to user collaboration or communication, but the 'object' is very similar to the collaborative artifact and is absolutely comparable. There is a high focus on the user, but no reference to the concept of roles. Rewards are not mentioned with use of the term itself, but is evident as part of the framework itself. And finally there is the player experience that lacks a direct reference but is a clearly major part of the framework through its focus on the user.

Table 6 Score chart for 'The Lens of Intrinsic Skill Atoms'

Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
2	2	2	4	5	2	3	4	24

3.7 Other frameworks referenced

3.7.1 Games Design 100 Lenses - Jesse Schell

Schell's book and design framework (Schell, 2014) was chosen as a game design framework due to its connection to Deterding's framework, but there is other literature with similar frameworks (S. Rogers, 2010; Salen & Zimmerman, 2004). They share similarities and are all useful guides for any game designer.

- 100 Lenses; perspectives for game design
- Player experience from game
  - Game is made for the player
  - The experience is in the mind of the player
  - Interest curves
  - One type of experience is the story
- Game consists of elements supporting a theme
  - Some elements are game mechanics

  - Balance
  - Puzzles
  - Interface
  - Game world and virtual spaces
  - Players, characters and communities
- Games begins with an idea and improves through iterations
  - Story and game structures can be merged with indirect control
  - Designed as a team and communicated with documents
  - Improved through play testing
  - Built with technology (client)

3.7.2 Seven rules for collaborative game design – Amy Jo Kim

These rules were taken from a presentation (Kim, 2014) focusing primarily on cooperative games such as Minecraft (Markus Persson & Bergensten, 2009), and Guitar Hero. The list has a compelling set of rules for collaborative game design and has been a valuable source for the CURE companion.

1. Compete with the system
2. Shared goals and outcomes
3. Inter-dependent roles
4. Coop social gestures
5. Shared resources and access
6. Non-zero stats and spotlights
7. User generated content (UGC)

First off 'competing with the system' rather then each other. PvE engages players with system challenges and milestone markers that develop skills, which for gamification translate into mastery. Then she refers to the sharing of goals and outcomes connected to a larger purpose and generating collective rewards, unlocking additional content and powers such as additional interactions through player progress. Inter-dependent role lets players specialize and engage in challenges requiring multiple players with connecting roles is a concept that the companion also embraces. Enabling cooperative rituals and social gestures such as Facebook "likes", polls and votes in social interfaces, dancing in MMORPGs are multiple examples for communication and community building also outside the gamified service, but she also talks about game mechanics that would be interpreted as play mechanics. Shared access to game challenges requiring scheduled meet-ups and collaborative game play are also component that can be introduced in a gamified service. But with certain limitations regarding users establishing this level of commitment, unless this is introduced as an activity that is considered part of their normal schedule. Shared resources and access to tools, game commodities, virtual goods, collaborative content and rewards are also useful components for a collaborative gamified service, but working with care when establishing rewards. Focus on non-zero stats - no win/loose mechanics - and spotlights to showcase excellence with such mechanics and group status. UGC user generated content) is another strategy that let's users create content and possibly expanding the gamified service itself. WoW has one of the most elaborate systems for UGC that has resulted multiple communities beyond the game system.

> "Discover the 7 rules for collaborative design that propelled these projects - and walk away with ideas and inspiration for how to apply Coop thinking to your next project." (Kim, 2014)

All of these rules are valuable for a gamified service and is based on actual games and game statistics that show a substantial growth in coop gaming.

3.7.3 Reality is Broken; Fixes for Reality - Jane McGonigal

Jane McGonigal's fixes for reality from her book "Reality is Broken" (McGonigal, 2011b) also contain useful insights focusing on player experiences compared to reality. Games are here described through the experiences of the players, and make a solid case for areas where gaming is better than reality. For a collaborative gamified service these are the 'fixes' that are available to such an endeavor if the player experience is able to be more like a game and less like reality.

1. Unnecessary Obstacles
2. Emotional Activation
3. More Satisfying Work
4. Better Hope of Success
5. Stronger Social Connectivity
6. Epic Scale
7. Wholehearted Participation
8. Meaningful Rewards When We Need Them Most
9. More Fun with Strangers
10. Happiness Hacks
11. Sustainable Engagement Economy
12. More Epic Wins!
13. 10 000 Hours Collaborating
14. Massively Multiplayer Foresight

3.8 Conclusions

When reviewing the five score charts compared to the components identified for a collaborative gamified service the overall results are very similar, but none getting close to the maximum score of forty. There is an obvious potential here for a framework companion that would assist any of these frameworks with adding collaborative components. Beyond these collaborative components they each have their strengths and weaknesses, but where the research conducted for this thesis would argue that additional focus on actual game design would enable these frameworks to better combine the gameful elements with those of a pure business related nature.

Table 7 Complete framework score chart

	Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
6D	**2**	**2**	**2**	**2**	**4**	**2**	**4**	**2**	**20**
Octalysis	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**20**
SGI	**2**	**2**	**2**	**2**	**4**	**2**	**3**	**3**	**20**
Loyalty 3.0	**4**	**3**	**4**	**2**	**4**	**2**	**2**	**3**	**24**
Skill Atoms	**2**	**2**	**2**	**3**	**5**	**2**	**4**	**4**	**24**

With these results the thesis would choose to use 'Loyalty 3.0' for the strategic business perspective and 'The Lens of Intrinsic Skill Atoms' for all components inside 'the magic circle' as a good foundation for implementing CURE.

4 Collaboration, users, rewards and experience

Going from identifying key components that are likely to increase the success of a collaborative gamification service, to discovering how these components are neither obvious nor easy to introduce into a service using existing gamification frameworks. The goal now is to devise a solution that would allow any gamification framework to be able to introduce collaboration by creating a design companion that would make this possible.

4.1 Requirements pre-CURE

Even before the CURE companion should be considered there are certain requirements or recommended features that should be considered. By combining the steps from the 6D framework (Werbach & Hunter, 2012) and Loyalty 3.0 (Paharia, 2013) and also adding certain criteria that would help to enable several of the CURE components, these have then been used to identify which steps would be relevant for a collaborative gamification service. From this exercise pre-requirements or recommended features were found in five major areas; goals and requirements, user profiles, software, hardware and finally statistics and big data. These criteria are useful for both new and established services, and contain information and examples as to how prepare for the use of the CURE companion. Also note that this thesis focuses primarily on the collaborative aspects of gamified services, and only those that contain special requirements or important preparations to this area are commented upon.

4.1.1 Goals and requirements

Concerning transparency and balance for the gamified service the stakeholder must understand the importance of these criteria when establishing goals and requirements. If the users feel they are being deceived the repercussions can have a severe negative impact for both the service and the company or organization's reputation. Do not underestimate the community's ability to uncover any hidden goals.

4.1.2 User profile

Data contained within the user profile will often have legal requirements in addition to those sought by the stakeholders. These requirements are outside the scope of CURE, but should be in place before launching any such service. Collaboration is a socially complicated area to monitor and there are issues concerning anonymity, privacy and the ability to address concerns regarding user behavior and interactions with the service that require special attention before initiating such a project.

4.1.3 Software

Sustainability

For gamified services looking to survive over time the software chosen to build the service must be able to handle continuous development. To ensure such sustainability the flexibility of exporting and importing critical service data will allow for a change of software platform when needed.

Extrinsic rewards

For extrinsic rewards to operate smoothly their availability beyond the gamified service highly depends on the chosen software and its compatibility with

systems beyond the chosen software platform itself. Ensuring a smooth and easy transfer of such rewards beyond the gamified service is an important criterion.

Gamification testing

Testing is an established necessity for any software application to ensure that both established success criteria's are reached as well as any additional testing such as usability. The testing of the gamified collaborative service from a game perspective is substantially more demanding and once moving on to the software platform a continuous part of the development as soon as upgrades to the gamified service are applied. The game design for such services will never come to an end, only a decision regarding when it is good enough for launch.

Support

It is a concern for collaborative gamified services how the players interact with each other in addition to the service itself, and even with a representative number of testing there is no testing available today that can prepare such a system for launch beyond a solid plan for further development and an very competent support team. For collaborative gamified services such support is even more important than with other gamification services as the lack of support or negative experiences with a support team member will quickly become common knowledge.

4.1.4 Technology and hardware

Hardware

Finding the right software directly influences the chosen hardware as well. In addition the flexibility of the software regarding its compatibility with multiple hardware platforms is absolutely more of an issue for collaborative services. Enabling more users access to the service increases the number of players and their collaborative potential.

Hardware support

Support will not only need to deal with the gamified service, player behavior and software problems. All the users problems regarding the compatibility of the chosen software platforms and the hardware will also be an issue the support team will be facing. Yet another area of knowledge to add to the support team

4.1.5 Statistics and big data

Where basic statistic might require a minimum of planning, big data requires the complete opposite. The additional requirements touch on several areas, from hardware to handle enormous amounts of data to the software to handle them. Add to this the need for additional specialists and support personnel. Where a basic database might store some of the following data;

- **Users**
  - Number of user profiles
  - Number of user profiles logged on every day
  - Time spent
  - Actions performed
  - Number of connections to other user profiles created
- **Collaboration**
  - Number of interaction between user profiles, virtual commodity trade and interactions with collaborative artifacts

  - Number of coordinated events where multiple users have participated/contributed
  - Number of completed artifacts with more than one owner
- **Artifacts**
  - Number of artifacts created
  - Number or artifacts completed
- **Commodities**
  - Number of virtual commodities pr user profile
  - Number of commodities created as rewards
  - Number of commodity interactions (trades/gifts/contributions)
- **Communication**
  - Number of user profile connections (profile affiliations)
  - Number of chat/messages/comments sent and received
  - Number of live chat sessions user profile has participated in
  - Average communication frequency (e.g. instant/hourly/daily/ weekly/monthly)
- **Rewards**
  - Number of possible intrinsic rewards created
  - Number of extrinsic rewards created
  - Number of co-owned rewards created
- **Player Experience**
  - Number of play mechanics activated
  - Number of game mechanics activated
  - Number of user goals completed
  - Number of stakeholders goals completed

The upgrade to big data not only gathers more data from the service itself, but it also tracks relevant sources beyond the service and gathers data from multiple external origins. The size and scope of the gamified service will help determine what type of solution is needed, but in most situations a collaborative gamified service will require more than a service with less or no collaboration.

5 CURE

CURE - Collaboration, Users, Rewards and Experience – is a gamification companion focusing on enhancing a gamification service with collaboration in a multi-player environment.

5.1 Introduction and overview

This companion focuses primarily on components that increase player collaboration in a sustainable gamified environment aimed at fulfilling the goals of both users and stakeholder alike. Even so certain requirements regarding the service as a whole needs to be addressed. Some of the frameworks presented earlier in this thesis present steps for companies and organizations, for planning and executing the design of a gamification service and evaluating its potential value and benefit for both stakeholder and users. Both upgrading an existing solution or the creation of a new one can make use of the CURE companion to enhance it with collaborative components. In both instances CURE acts an addition to an existing framework where this thesis would recommend 'Loyalty 3.0' for the strategic business perspective and 'The Lens of Intrinsic Skill Atoms' for the game components as a good foundation for using the CURE companion.

Some components from the CURE companion are considered mandatory, but some of them are either optional or can be solved by integrating existing 3rd party software with the gamified service. The companion also promotes the addition of an open source code library allowing the users to design and add components to the service by using an API to expand the gamified environment, also known as addons. MMORPGs like WoW (Blizzard, 2004) allows its users to program such addons and change certain parts of the game interface. The changes can be everything from changing the graphical user interface to visualizing and presenting game data or even assist the players with taking on certain game challenges. Also Amy Jo Kim recommends user generated content as a tool to get the users involved and collaborate in making the gamified service better (Kim, 2014).

Based on the findings in this thesis four core components were identified and established as different from what many of the existing gamification frameworks include; collaboration, users, rewards and player experience.

- Collaboration is defined by Jane McGonigal as cooperation, co-creation and coordination (McGonigal, 2011b) to which the addition of multiple additional smaller components that are able to motivate users to collaborate.
- Users are central to any gamification service, but certain differences and variations surface when working with collaboration. Not to mention additional components that naturally is part of the user profile such as in-game profiles and virtual commodities that are connected to such profiles.
- Rewards are challenging components that are difficult to balance. Todays MMOs contain multiple ways of rewarding its players and to motivate them to engage in different areas of the game (levels, achievements, reputation, quests and 'loot' to name some), and even if these rewards are purely in-game (often referred to as intrinsic) they can also be perceived as extrinsic rewards. When using actual games as inspiration for a

gamification companion, how the users perceive and relate to such rewards in the gamified service defines who and how they motivate, and the perceived value of these rewards become an important requirement that the gamified solution needs to address. Balancing extrinsic and intrinsic motivation with extrinsic and intrinsic rewards has become more complicated and a simplistic interpretation can easily have results very different from those expected. New to any type of in-game reward is the possibility of an external monetary value making the intrinsic reward and extrinsic even if this was not intended.

- Finally the player experience adds game components that focus and promote a player journey that includes active collaboration with other players. A simple pyramid model has been introduced to assist designers decide what type of experience they are aiming for with regards to play, games and goals. The player experience is also influenced by basic psychological motivations such as achievement, affiliation and autonomy that all will influence the collaborative mechanics that is sought by this thesis.

All of these four contain multiple sub-components of more or less importance for a collaborative gamified service and will be described and explained as part of these four main components.

5.2 Collaboration

Having already split collaboration into cooperation, co-creation and coordination there is no reason to stop here; there are numerous collaborative mechanics and concepts that can be introduced in addition to these three. For example communication; what tools for communication will the solution have available for the players? Or to be more generic; how will these tools enhance the game experience and motivate players to collaborate? This thesis will cover the following components for collaboration; cooperation, co-creation, coordination, communication, collaborative artifact, conceiving, connecting, community, coaching, compatibility and clustering. Additional components can obviously be found and adapted according to any special requirements for the service.

To achieve any form of collaboration at least one of these components, but preferably several, should be a part of a collaborative gamified service. It is important to note that not all of these components need to be included in the service itself, but implemented or integrated through 3rd party web site, software or hardware. Integrating with external services is in itself a way to promote collaboration through additional channels where the easiest examples today would be social networks such as Facebook and LinkedIn, or social media networks like Instagram, Flickr or YouTube. Where there exist good examples for such 3rd party software options these will be listed as part of the description of the respective components.

For the CURE companion definition of collaboration is to include one or more of the collaborative components into the gamified service and optimize it for collaborative activities.

5.2.1 Communication

When collaborating a player will need access to good tools to communicate with each other and with the collaborative artifact. Between players examples of identified mechanics are chat, instant messaging (IM), mail, short message systems (SMS), voice communication (like Ventrilo or Mumble), bulletin boards, Wiki's and forums to name a few. These also represent communication with different time frames where some are instant (chat or IM) and others exists over a long period of time (Wiki or forum), some exists between just a few players (for example Skype) and others are available to multiple players (Ventrilo). Avoiding the inclusion of communicative services will only force the users to find other means of communicating, and considering how many of the other components rely on the players ability to communicate the value of adding one or more communication components to the service is recommended. Even with more than one such component installed the users will still find alternative ways to communicate also beyond the gamified service. Nurturing such social activities is one of several alternatives for promoting a user community also outside the gamified service.

In addition to players communicating with each other there is also the option of communicate with and through the collaborative artifact. Individual players do this type of communication with the collaborative artifact, but the message itself becomes a part of the collaborative artifact that connects with multiple players. Basic entries include adding or editing content in the artifact, adding multi-user activities such as polls, challenges, commenting on artifact content, and other positive interaction with the artifact. Any mechanics that can trigger negative values or attitudes must either contain strict filtering or be monitored to avoid abusive behavior (discussed in more detail later in the article). These additions to the collaborative artifact make it into a 'living' object where the players can communicate and contribute to the artifact in a safe environment.

The key is to be aware of any communication between the players within the gamified service as well as how the users communicate regarding the gamified experience beyond the service itself. Both sources of communication are of value for how to adapt and adjust the service to accommodate the players.

CURE RECOMMENDATION

Introduce at least four communication tools based on a short and long time frame, and from two and multiple players.

5.2.2 Cooperation

Cooperation in this context is abilities in the game that lets players actively interact with the game in a cooperative way. There are multiple game mechanics that can be used to encourage this type of interaction, but the most common being the following;

- Reactive – responding to a game event or actions from one or more other players.
- Collective – a group of players are all required to interact for progress to be made.

- Turn based – one player does something first followed by the next player and so forth.
- Deadline – players have until a specific deadline to interact, and at that time all the interactions will be calculated and resolved.
- Real time – players cooperate with the game at the same time.

Some of these are similar, but differ in their time perspective. Other types of cooperative interactions or usually a variation or combination of these.

In a service aiming for collaboration the primary use of cooperation is either to address an ongoing game challenge requiring multiple roles to be solved, or interactions with the collaborative artifact that require cooperation.

CURE RECOMMENDATION

Add cooperative alternatives to all components and player interactions increase their perceived game value or add additional rewards for preferring collaboration over other alternatives.

5.2.3 Collaboration artifacts

The focus of this companion is to motivate and enable players to collaborate. For these players to connect and collaborate they will have to connect with an artifact as well as collaborate with the other players connected to the same artifact. A collaborative artifact is what the players connect with and the reason they collaborate. Through this collaboration they develop the artifact, and the artifact in return, tracks the players collaborative, how they interact with it and how much for so to challenge and reward them accordingly. As the artifact grows/evolves in the gamified environment the players are able to achieve, master and interact and gain access to additional tools and components to continue their player journey. The collaborative artifact is one of the core components of CURE that any collaborative gamified service should include.

The collaborative artifact component includes its creation, its development and its completion After having conceived or co-created such an artifact the players will gain access to game mechanics for interacting with it and to collaborate with other players to develop it. A player can also indicate interest in other player's artifacts and be given access to interacting with these. The artifact becomes a hub for many of the CURE components with possibilities for basic gamification frameworks as well.

Combining a collaborative artifact with roles (5.3.4) is a useful way to connect players and promote collaboration through the interdependent abilities they bring to the collaborative artifact with their roles. The artifact itself includes user and player profiles, CURE and other gamification framework components and finally player generated content. The user-generated content (UGC) is one of the keys to unlocking the potential that is the collaborative artifact. Connection to or interactions with the collaborative artifact does not add much visible value to it, it is first when the players interactions results in an addition to the artifact that other players become aware of that it becomes a living part of the gamified service. Its presence changes from a static object like a user profile with its multiple friends and family members in Facebook to a living entity like the News

Feed in the same social media service. Unlike Facebook where are users are equal a gamified service that has introduced roles also introduces content unique to each role. The combination of these is how the artifact grows and encourages each player to keep adding more content dividing the production of a complete artifact into to smaller pieces. The idea is that each such minor piece of content only requires a minimal effort from the role generating it.

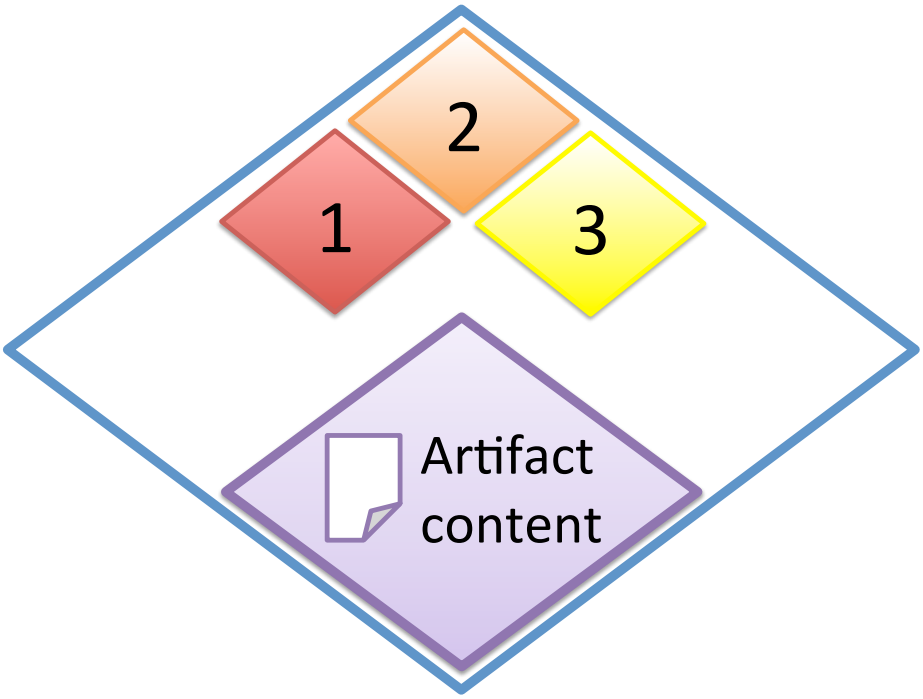

Figure 2 A collaborative artifact connected roles and content

Which brings us to the importance of investing enough time to design such artifacts so that all these minor pieces can be combined and puzzled together to create multiple variations of complete artifacts representing a mixture of player and stakeholder goals. For the player it is the completion that represents the goal, and for the stakeholder it is the content that they are able to extract from it.

Time is important, and for most scenarios the best solution is a turn-based system for resolving player interactions (e.g. one turn every 24 hours). Each player has a limited number of actions that can be performed every turn. When a turn ends all actions made by its players are calculated and the game is updated accordingly. The alternative is real-time solutions, which requires much more of the participating players and introduce additional and more complex requirements for the gamification service as a whole. At the same time such real-time events creates an powerful game experience with intensive collaboration with the potential of producing extraordinary results in a short period of time. If the service requires certain blocks of content produced within a very short timeframe this is the immersive player activity that can make it happen. It is also where collaborative gamification has its largest potential.

When designing the collaborative artifact and how it connects with the players a possible solution is structured list of all available interactions available to the

players. This list should also include interactions not available to all players like those only available to administrative and back-end support employees. Each component that belongs to collaborative artifact should have at least one such interactions connected to it. Each possible gamified service situation or event should also have interactions connected to them. When testing the service, add interactions to deal with all new situations that surface. Once the list feels complete evaluate each interaction regarding what type of experience it represents; does it supply data towards a goal, is it part of the game experience or is it just for fun with no real value beyond its presence. Or as an example; does it generate a piece of data that takes the artifact closer to completion, does it result in the progress of a players game profile or does it simple change the color of the artifact user interface? This list is 'the game' and represents anything and everything a user presence within the collaborative gamified solution will be able to do. It is also a 'to do' list for many other components from both CURE and related gamification frameworks. What might start out, as a simple gamified service, is very likely to grow out of control very quickly if not held in check.

Another way to view a collaborative artifact is as a profile similar to that of a role. The artifact becomes a part of a web that connects player and artifacts together and clarifies how the gamified service hopes to achieve this. Where a role has a player controlling it, a collaborative artifact has multiple players controlling it. All aspects and variables that are a part of a role can be introduced into such an artifact, from unique abilities to how it progresses. Where the role makes these available to its player a collaborative artifact makes them available to all players connected to it.

So far the connection of players to a collaborative artifact has been established as equal, but here lies yet another piece of the artifact puzzle. A complex artifact can easily differentiate between how a player is connected to it and how this changes the synergy between a player, the artifact and the other players connected to it. The easiest way to visualize this is to think of it as a hierarchy where the top players 'owns' the artifact, and the lower ranks represents either how much a player has contributes or how much a player is expected to contribute. This type of game mechanics hold a definite risk of abuse and becomes an area that will need close supervision and strict rules for player behavior. But at the same time it also allows for players to manage and plan the growth and progress of 'their' artifacts and increases the 'feeling' of ownership of the artifact and affiliation between the players connected to it.

For a sustainable service this artifact also represents a component that is very likely to be modified or changed to improve user experience or stakeholder requirements regarding the data they seek to extract. A gamified service must be careful with inserting such modification or changes and be especially aware of those that are likely to have a negative impact on players or their game experience.

No matter the size of a gamified service the collaborative artifact will, more likely than not, result in the success or failure of the service as a whole.

CURE RECOMMENDATION
Include a collaborative artifact and spend time designing it so it both promotes collaboration as well as presents the players with challenges they must overcome and situations they must master. Introduce effective feedback systems and activity loops to keep the player focused and motivated to continue their efforts.

5.2.4 Conceiving
Where collaborative artifacts are not a part of the system from start the creation of them is critical. A simple component to promote the creation of such artifacts is one where a single player can be given the ability to conceive a fragment or segment that can later be used to create a collaborative artifact. Even as conceiving in this context is to be understood as a non-collaborative effort it is important to understand how it is also the part responsible for collaboration once these conceived components are inserted into the gamified service to become collaborative artifacts. Thus the journey begins with a fragment that through co-creation becomes a collaborative artifact. The existence of such fragments also opens for their status within the gamified environment to be amended, as they could be a commodity to be traded or a requirement for an artifact to be created.

CURE RECOMMENDATION
Conceiving is an effective component for either generating a high number of potential collaborative artifacts or to give certain roles (see 5.3.4) a unique ability that makes them valuable as a team member.

5.2.5 Co-creation
Co-creation is a method to instantly get multiple players involved with a collaborative artifact as well as introducing new players to existing artifacts and allowing them to become a part of the creative efforts of the artifacts they wish to support. Co-creation is transforming the conceiving component into a collaborative co-creative one. There are multiple variations as to how this ability can be made available to the players; it can be a part of a role, it can be activated once certain criteria are met or it can be earned as a reward or part of the game progression.

From both the enormous MMOs to most project methods the use of roles is introduced as a way to identify how a specific role is expected to interact with a collaborative artifact. It can also establish limitations or give unique options for how a specific role can interact, with a collaborative artifact. When used together with the conceiving component there are abilities that naturally belong together than can be divided among available roles to promote their collaboration. One role to conceive a critical fragment and several to create a collaborative artifact; co-creation is an excellent tool for getting players to collaborate.

Co-creation can also be an ability that can be given to players that are connected to a collaborative artifact. Thus having multiple players using the ability to expand and nurture the collaborative artifact they are connected to.

CURE RECOMMENDATION

Co-creation is a powerful collaborative tool and should always be introduced, but to keep the ability from loosing its value, choosing only one of the options above prevents this.

5.2.6 Coordinate

For groups of players to be able to take on all of these collaborative activities they need to be able to coordinate their efforts. Activities such as scheduling, delegating, follow-ups and other time-related operations are all interactions that be assisted by a coordinative component to promote collaborative activity. They can be introduced as rules, as abilities for players or as tools to assist and aid players. Coordination tools are also excellent sources for understanding how players are addressing and planning their collaborative efforts. These data can also predict the completion of collaborative artifacts and give a generic indication as to the overall activity within the service. This is only valid as long as the players find these tools useful, or that they have been properly designed to persuade the players to use them for in-game benefits, rewards or progress.

CURE RECOMMENDATION

Add tools for coordination, but scale the number of tools to the scale of both the total service population as well as the size of its interaction library.

5.2.7 Connecting

Connecting with other players is a way to establish relations and keep track of other players. Different ways of associating with other players as well as finding/searching for possible matches to take on challenges in the gamified solution are components that encourage collaboration. A common example from both games and social media would be the use of friend lists or contacts, similar to those of Facebook or Skype. Another would be what games refer to as a guild that represents a player controlled game component where a group of players connect to each other, similar to groups in Facebook. A final example would be that of the short-term collaborative group, a common concept in gaming, that brings together a group of strangers with the goal of completing a game challenge or task that can not be done by a single player alone. As a game example WoW has special tools integrated into their game to automatically connect the correct set-up of roles to take on such game challenges. Connecting randomly like this might also be the beginning of something more and is yet another component that to a certain extent promotes future collaboration. And most importantly, if the service does not install and optimize tools for connecting players they will find other ways to do so.

CURE RECOMMENDATION

Introduce with caution, as players will always choose the solution they are most comfortable with. Focus on creating solutions that add value to collaborative activities such as short-term collaborative groups and connection options for collaborative artifacts.

5.2.8 Community

In this thesis a community represents both the in-game community as well as that outside. The in-game community already has tools to create, explore and expand their community within the gamified service, but as games has taught us

a community can expand a lot further than this. As an example on site (XtremeTop100.com, 2015) has WoW listed with 250 fan sites where there are likely to be more, and a Wiki with 103470 pages (Wowwiki, 2015) has an extensive list presenting such sites according to genres and types of content. This represents one of many large external game communities, and for many game companies so important that they have dedicated employees to keep their community alive and active. This type of community building is difficult, but once the gamified service reaches a certain size these sites will appear.

CURE RECOMMENDATION
Monitor the Internet for the appearance of community sites and have a plan for how to track their activity and build constructive relations with productive factions.

5.2.9 Coaching
Upon entering the system for the first time there are multiple solutions for onboarding the player to how the system works. Tutorials is a useful tool for an initial introduction to the basics, but with any kind of complex system this will not be enough to assist the player with elements like etiquette, system specific linguistics and behavior, social rules and mastering the system beyond the basics. The only real way to introduce such aid for a new player is to have veteran players assist them and guide them. In a positive and friendly game environment such new players will receive a warm welcome and be offered any kind of help they might require for free, but this kind of coaching can also be introduced as a game mechanic that can reward a veteran player for helping out new players to establish a foothold. With a collaborative gamified service any game components implemented to promote and support this type of coaching will also promote collaboration. Although not common, this type of mentoring is slowly becoming more normal and helps create a friendly and secure social environment for new players.

CURE RECOMMENDATION
The introduction of actual game components to assist new players into the game community as well as introduce them to how to get the most out of the gamified service becomes more useful with a large pool of players.

5.2.10 Compatibility
One of the default topics for users (see below) is the introduction of roles. Once a player enters the system a role must also be chosen. Combinations of different roles will allow the players to optimize their ability to interact with the system. The compatibility of these roles will bring the players together through pre-defined combinations of roles that will allow a group of players to take on challenges that would otherwise be difficult or even impossible to complete. The compatibility of certain roles will motivate the players to collaborate with such roles to gain access to content or abilities unique to such groups. Most MMOs today introduce a specific combination of roles for their group content, but there is no reason why different challenges or interactions can require different combinations of roles. It is a matter of establishing the compatibility of the roles and how different combinations will create different results; how would a game

of Monopoly change if suddenly two of the players decided to combine their resources?

CURE RECOMMENDATION
Only introduce complex compatibility structures with a large pool of players and an extensive end-game environment. Smaller service environments have less to gain from adding this component.

5.2.11 Clustering
Where connection and community is a conscious act or activity initiated by a player, clustering covers all of the non-conscious ways players are connected. From gender or minor game related data such as 'roles' or quantitative data regarding certain activities from who to when. Identifying the massive amount of potential data available in a complex collaborative gamified service is a complex endeavor at best, but the potential value of identifying relevant or beneficial patterns is a valid reason for doing so. No matter how this is introduced or what data is harvested it is critical to remain transparent with regards to the users. They are already aware of their symbiotic relationship with the stakeholders, and an exposure of such an activity hidden from the users is likely to have dire consequences with regards to any mutual trust established.

CURE RECOMMENDATION
This type of game component requires a high level of transparency, and is more likely to yield identify valuable clusters with a large pool of users.

5.3 Users
Even if roles are the most important contribution this companion introduces, it is important to understand the hierarchy it belongs to, which is that of the user. To be able to properly address these roles, one much first enter the service as a user, and then enter the gamified part of the service as a player. First when interacting with the system beyond this point does the choice of role come into play. Once this journey into a role is complete the promotion of collaboration begins, but for collaboration to be possible the players must be able to properly interact with the gamified service. The users point of entry (PoE) also predicts how this user is going to interact with the service and for how long. With collaboration in mind this thesis looks at the users PoE and their choice of roles to establish how this collaboration might occur. There is also a difference between user data and privacy and that of a player, but they can also overlap which is why the user profile itself becomes a component of value to a collaborative gamified service.

5.3.1 Point of entry (PoE)
Point of entry is how the player 'enters' the game as well as the 'location' of the game and/or game mechanics. It is also a combination of technology, platform and network that all influence how a player will be able to interact with the game itself as well as the other players.

Point of entry establishes a broad range of factors that will influence all other design choices made to create a collaborative gamified solution. Beyond that of the technology/hardware is required to interact with the service and what

software in terms of both operating system as well game client and the users with their location and time available. These last two elements will directly influence certain design choices that need to be resolved.

Location and time to spend touches both on the player's ability to interact with the gamified service as well as the experience the player is having. Location, in this specific case, relates partly to the hardware the user is connecting to the gamified service with, as the screen and user interface of a smart phone is very different from that of a PC at home. It also relates to issues related to interaction consistency; is the player completely focused on the gamified service or just casually interacting while also involved with other activities? This brings the final issue; time to spend. Riding an escalator in a shopping mall, riding a subway or sitting at home changes the time frame from seconds to minutes to hours. Decisions need to be made covering both of these topics by answering the following questions; where will the user interact with the gamified service, how much time will the user have for this interaction and what interface will be used? Each location adds one or more time frames and one or more specific user interfaces. From focused interactions at home to a casual poke on the smart phone while walking to school.

Network requirements define on how the player's interactions are synchronized with the gamified solution and how they are communicating. Interacting with the gamified service has similarities with those of the communication component, but with the user 'communicating' with the gamified service. From real-time interactions and immediate feedback to turn based updates every 24 hours with feedback first available after the specific turn interactions are resolved. One does not exclude the other, but they each represent its own design track.

After these aspects have been sorted we move on to the next stage of entering the gamified service, namely its placement in relation to the software or services it is enhancing. For this companion this becomes a choice of where to place 'the magic circle'; does it exist inside and existing service, outside or somewhere in between allowing interacting with the non-gamified service possible in some parts of the gamified service, but not in others. This issue is only relevant if the gamified service is an extension of a non-gamified service, or is to be connected to one or more 3rd party services, and represents questions regarding how the gamified service is integrated with the non-gamified services. The more complex the integrations the more complex the design process will become.

CURE RECOMMENDATION
Use few points of entry for new services and limit the initial number for already established ones. The pure magnitude of additional work required for designing a service by adding flexibility to locations and time usage is reason enough to be very careful with expanding a gamified service beyond with such affordances.

5.3.2 User profile

When working in collaborative systems anonymity is not an advantage, and being able to securely authenticate a player when a user profile is created is recommended. The primary reason is to reduce misuse and abuse of the system,

which is more common when anonymity and/or unauthenticated user profiles are possible. In addition this type of behavior will always be more common within a service with a high social profile where there are multiple channels and ways to interfere with the service and the game play of other players.

Once a profile is set up and authenticated the user can log in to the application and interact with the portal through which the gamified experience begins. The user profile is the first of three profiles that the user will have a strong sense of ownership of. Good examples of solutions containing such profiles are Facebook, Twitter and of course all of the earlier mentioned MMORPGs analyzed as part of the thesis research.

A sample user profile could contain these data categories;

- Personal information (name, email, photo/avatar and description)
- Authentication (how the user has chosen to authenticate themselves)
- Background (field of expertise and education)

Personal information is required, but the users can limit how much content they wish other users to be able to see. Authentication is for the gamified service only and primarily as a security measure with regards to misuse of the service or abusive behavior. This type of data is also a security risk for both the user as well as the stakeholders and requires that proper security measures are in place to protect it. Background data is always optional, but can in some situations have in-game value and also become a part of the player profile within the gamified service, and be of value for collaborative activities. This type of transparency of personal information connects the players on a more personal level as knowing something 'real' about a player also make connections more intimate and exclusive.

CURE RECOMMENDATION

Make the creation and validation of a basic user profile quick and easy, but ensure a high level of security due to the authentication requirements. Allow users to upgrade their security at a later stage to include elements like two-step verification. Using personal background data as part of the gamified service can be a positive addition to any collaborative gamification service if designed appropriately.

5.3.3 Player profile

When the user moves through the 'portal' and into the gamified environment a player profile is added to the user account. When accessing the service after the user profile has been set up the user will most often start their gamified service sessions with their player profile. Unlike the user profile there are many items in the player profile that are not user controlled, but collected directly from the users service activities and choices. It is also where players has access to their role profile (see 5.3.4). As a player progresses the profile would also include any new content received including access to profile elements with new choices and options for the player to explore. Extensions to the role component such as skills and abilities are also a part of this profile.

There might also be possibilities for introducing actual user data into player profile. This could be making a copy of user data and inserting it into the player profile for gamified service purposes or integrating data from an external source. As a hypothetical situation knowledge and skills that the user possesses could be considered valuable in certain service related activities. As an example LinkedIn uses 'Skills & Endorsements' to allow its users to promote their top skills and have other users endorse these. Connecting a LinkedIn profile and using these 'Skills' in a gamified service as part of the game experience. One could even consider it possible to allow the gamified service to generate such endorsements and export them back into LinkedIn as part of a reward process.

So how does this become a collaborative component? For each player it might not represent much more than an overview of their collaborative potentials, but for the stakeholders this is an important source of data. Tracking player activities is one way of the basic choices for gathering data related to the player's in-game activities and collaborative engagement. The information for the player might seem like basic feedback, but when matched up with all the active players it becomes a data collection with an impressive potential is matched up with the stakeholder's goals for the service. Even if the primary goal is something else, finding alternative goals among this collection.

A sample player profile could contain these data categories

- Role (data related to the role the player uses in the gamified service)
    - Abilities (which interactions are available to this role)
    - Progress (how much progress has the role achieved)
    - Stats (which stats the player has chosen or received for this role)
    - Skills (player chosen skills, endorsements from other users, skills available to this role)
- Artifact tracker (artifacts created, artifacts connected to and artifacts interacted with)
- Activity tracker (latest activity and historical overview)
- Connections (connections beyond those gained through the collaborative artifact)

It is important to note that whatever data the stakeholders are using it must also be available in some version to the user. This insures that the transparency remains and trust is upheld.

5.3.4 Roles

Perhaps one of the most noteworthy components for CURE is the adoption of roles. They represent a fundamental aspect of most MMO games today and an establish method from game design to achieve balance in the game. The gamified service establishes a set of roles that a user can chose from when becoming a player. All roles are interdependent and balanced so that tough challenges with exceptional rewards require a team of players. Other basic interactions might also be more rewarding if done with a mixture of roles, such as the collaborative artifact. This type of collaboration is considered to be one of the core

components to promote collaboration between players and is widely used also beyond the MMO genre.

So how do roles become such strong motivators for collaboration? Consider the earlier mentioned interaction library; the list of all possible actions and activities available in the gamified service. Take some of them and make them only available to a specific role. Continue dividing them into additional roles depending on the scale of the solution; the larger the pool of users, the more roles can be added. Be aware that the more roles that exists the more difficult it will be for the players to be able to gather up a complete team of roles. To avoid this from happening it is possible to let more than one role have access to certain abilities making it easier to put together complete teams. Complete here referring to a group of players having access to a specific set of abilities, where this combination of abilities allows the team to perform better than a single role. Best-case scenario is to make certain activities, events or challenges impossible for a single player to complete; collaboration becomes the key.

Roles also introduce several underlying options for adding additional content to the game through progress and additional abilities or ability modifiers beyond the initial overlapping. Most existing gamers will be familiar with both the concept of 'leveling' (see 5.3.5) as well as ability modifiers such as 'stats' and 'skills' (see 5.3.6). Adding such concepts makes the diversity mentioned above possible and expands the possible gamified activities as well as adding complexity that the players must master.

Another important aspect of using roles is their ability to be adopted for multiple user backgrounds, ranging from age to profession. Designing a collaborative gamified service targeted towards both young and adult players could make use of roles this way by either adopting different sets of roles for different age ranges or giving each age range access to specific roles other age ranges do not. The same idea could be used for users with different professions and using roles to promote diversity as well as collaboration.

And finally roles add more possibilities for play. In MMORPGs the generation of a 'character' – an avatar with a specific role – is a creative process allowing the players to modify the appearance of their avatar to reflect their image and presence in the game environment. This activity has no impact on the game in any other way than to stimulate creativity and possible increase the immersion and connection the player has with the avatar. Most types of personalization, choosing an avatar to represent the player or simply adding emoticons available for chatting based on the players role are all just elements added for the entertainment of the player, but is a positive addition for many players. Adding a bit of 'fun' through play mechanics requires little effort, but is probably just as much fun for the designers as it is for the players.

CURE RECOMMENDATION

Add roles according to the player pool. Add and mix the abilities of these roles to promote collaboration. Using play mechanics for roles helps place focus on them and adds a bit of 'fun' to the gamified service.

5.3.5 Leveling and progress

Leveling is a way to scale progress where by reaching the next level will allow the player to gain access to additional content and upgrading or gaining access to new interactions within the service. It can also be used as a tool to match players according to their 'player journey', for example the stages presented in both the Octalysis and the 6D frameworks (Chou, 2013; Werbach & Hunter, 2012). Not only are roles interdependent, but also their 'levels'. This adds another layer of complexity to the service and promotes mastering. For some players this might become a bit overwhelming, but due to the pace of how this progress works the changes and added complexity do not create massive amounts of complexity as it is added in small blocks that in themselves are not likely to be experiences as overwhelming. Ensuring that they are designed this way is of course of the utmost importance to avoid having players give up and take their 'business' somewhere else.

Adding content based on progress and levels adds complexity as well as possibilities, but also demands more of the development of the service and should only be used if there are enough resources to do it properly.

CURE RECOMMENDATION

Adding progress is a good way to show the player how they are mastering the gamified service, adding levels is a way to split this progress into smaller and easier accessible blocks. A good addition to a collaborative gamified service if the developers can handle it.

5.3.6 Stats, skills and abilities

Originally these are components that computer games picked up from tabletop roleplaying games and adopted into their games. There are multiple variations of how these three components can be introduced, but to simplify this task a basic interpretation has been adopted to avoid any confusion.

- Stats, or statistics, are numerical values that modify or change the outcome of skills, and define which skills are available to a player or role. The number of stats is identical for all players, but their values are different.
- Skills are accessed through their respective statistic and modify or change the outcome of abilities, and define if certain abilities are available. Skills are either defined by the role a player has chosen or by the player's own choice if the right stats criteria are met.
- Abilities are available actions that a player can activate to influence or interact with the gamified service. Some abilities are available to all players, some are available only to certain roles and some are available only to those with the matching skill. Stats and skills can determine if the use of the ability was a success or a failure, or it can help determine how successful the application of the ability was.

This makes up a grid of variables where players try to optimize their performance or increase their success with their interactions with the gamified service. For certain MMORPGs figuring out the optimal values for a given role or situation has created a whole new 'science' referred to as 'theorycrafting'

indicating that this also represents and important aspect of the game experience for some players.

This is not a component for most services, but one that would truly make the service visible in todays market and especially to gamers that are familiar with these components already.

CURE RECOMMENDATION
Taking the gamified service in this direction brings it to a whole other level of complexity for both its player and absolutely for its developers. CURE presents it as an option, but warns against the task of introducing this level of complexity.

5.3.7 Virtual currencies and commodities

Game economy is a topic for most large MMORPG games today, and the introduction of currency or commodities is part of this component as well as bringing with it parts from stats, skills and abilities combined with rewards. Once in play these items are owned by a player or by a collaborative artifact. These are obtained as a reward by interacting with the gamified system. They create collaborative value through trade and increased rewards for collaborative efforts.

When used to influence the game a player or artifact can equip the items to gain certain advantages similar to those of stats and skill; e.g. you have an ability to create content and equipping an item makes the piece of content larger or enables you to create two pieces of content instead of just one. In terms of collaboration the equipping of such commodities to a collaborative artifact could influence all players connected to it. This way the artifact gains value and attention making it easier to bring on more players to assist in its completion.

CURE RECOMMENDATION
Adding virtual currencies and commodities also introduces game economy. This is not in itself a collaborative component and would be a part of the initial design. Without this foundation it will have little or no effect on the game and be more of a play component.

5.3.8 Trading and commerce

With currencies and commodities in place there will be a market for trading, which also depends on the existence of a game economy. The balancing of such an economy is a large undertaking, but it also represents yet another field of interactions where players are able to communicate and trade. Here lies the potential of creating trade unions with players collaborating to gain a position in a fluid market. For a good commerce solution to work it also requires a somewhat large number of such commodities and multiple options to gain access to them. A good example would be the game The Elder Scrolls Online where the only way the players can trade is by joining a trading guild. Each such guild can only have a certain number of players so selecting active traders is how these guilds are built and operated. Players that are not involved with the trading, or compatible, would be retired and another player would take this players spot in

the guild. This is just one of many systems that promote collaboration and where there are multiple options for such commercial activities.

CURE RECOMMENDATION

As with currency and commodities trade and commerce requires a game economic system. In addition to this requirement it is a component that is better suited for a large or complex gamified service. Not in the sense of having a large pool of players, but in the pure scale of the service itself including.

5.4 Rewards

For basic gamification the use of rewards is a common game mechanic, but when introducing large scale collaborative gamification service the way rewards are used will change, as they are no longer only given to a single player. Such rewards are either collectively owned by a group of players, or by a collaborative artifact. The question is what a reward is and how does it motivate or promote engagement?

Progress within the gamified service can be experienced as a reward, and both artifact progress and virtual commodities can be considered as in-game rewards of a collaborative nature. All of these rewards would be connected to behavior that the stakeholders want to persuade the users into performing. The completion of collaborative artifacts is a special case as it is the primary goal in service like this, and it is natural that this is also rewarded appropriately. Unlike basic game activity this reward has the potential of having value beyond the service similar to how it has value to the stakeholders when 'taken out' of the gamified environment. This becomes complicated due to its obvious extrinsic value, which most gamification frameworks do not recommend.

Note that a commodity might also come to hold an external value as seen in many of today's MMORPGs (EVE, WoW, Rift, SWTOR), but this type of transaction primarily focuses on using non game currencies to gain access to in game commodities and is reason for banning players if caught. But again we experience the problem of an in-game reward that was intended as intrinsic suddenly also has an extrinsic value attached to it.

Many state of the art gamification articles focuses on the use of intrinsic motivation resulting in intrinsic rewards. Certain cases of extrinsic rewarding exists, but this type of rewarding will move the player's focus on the service itself to the reward, and playing is now motivated by this reward rather than the game experience itself. Many players will in such cases look for easy alternatives to receive such rewards and very likely result in a lower quality of the collaborative artifacts.

CURE introduces extrinsic rewards as an important part of a collaborative solution for several reasons. The first reason is the individual user's perceived value of playing the game when this also presents you with the possibility of extrinsic rewards. Secondly this type of rewarding has an obvious marketing value and the rewards themselves can be perceived as part of the applications

marketing strategy. An extrinsic reward also presents a certain level of transparency so that a player's performance within the game is also visible outside the game, which is an easy way to help avoid unwanted player behavior.

But how can the negative extrinsic focus be avoided? It is possible to intrinsically motivate with an extrinsic reward if the reward itself is of an informational nature (Deci et al., 1999). If the extrinsic reward directly reflects on what the user has done within the gamified service, and confirms this through an extrinsic reward of an informational nature, the intrinsic focus of both motivation and reward can remain intact. And the user still receives something to 'show off' to friends and family and prove their participation and efforts.

So what is the collaborative value of such an individual reward? This reward should be designed so that it matches the goal the user has for participating, and the only way to get it is by collaborating.

CURE RECOMMENDATION
Include some variation of an extrinsic reward, but try to keep the motivation for receiving the reward intrinsic.

5.5 Experience

The Proteus Experiment economist claims that a virtual world is a valid place to escape when the real world becomes impossible to relate to in one way or the other. With the games today the escape is primarily one of entertainment while naturally stimulating other parts of human nature as well all depending on what type of game is being player for example competition for FPS, RTS or MOBA games and roleplaying for an RPG or MMORPG. When adding gamification to a system the system also becomes the home of a virtual component similar to the one found in an actual game. A collaborative gamification experience is a direct result of this virtual component, and the experience is one that the users wants to expand upon or seeks to add to their everyday life. The optimal collaborative gamification system makes this possible for its users. The experience allows the user to become better at something or to learn something new by mastering the gamified system and collaborating with the other players.

A collaborative game experience has a different appeal to its players than other types of games. The roles a player chooses will be able to progress and evolve. This type of progress is referred to as 'levels' in most MMORPGs, and is a good way to explain such game mechanics. The higher the level a player reaches additional abilities become available to the player, access to content unavailable to lower leveled players and more. Gaining levels requires that the player is mastering the gamified system, and once a maximum level is reached the gamified system changes and new tasks and types of mastering becomes available. In MMORPGs this is usually referred to as "the end game" and is critical for such a system to keep its players motivated and active. If there are no more challenges to master there is no motivation for the player to continue as an active player. At some point even this content will not be enough to keep the players motivated and this is the time to add a major patch to your gamified system adding changes and content and presenting the players with a new game

experience that still has the same "feeling' as the old gamified system. Balancing such patches is probably one of the more difficult tasks for long-term sustainable gamified solution and why Gartner predicts that a large amount of newly designed gamified solutions will fail to reach their goals. If not in its original form then in its evolved state as was the case with FourSquare.

5.5.1 Playing, gaming and goals

When looking at what type of experience the system wants the user to have there are three keywords that can help generate a general picture. Somewhere in between play, game and goals lies the experiences your users will end up with. Although it is difficult to predict what such an experience entails it will help identify some basic ideas as to how the system should be built.

1. Play contains no value for the stakeholder, and has no effect on the game mechanics in play, but represents a certain value for the user.
2. Game contains all game mechanics present in the system and as such also all the rules that govern how the player interactions work.
3. Goals represent the stakeholder without any game mechanics of playful design included, or a system completely void of gamification.

The player experience will exist somewhere in this triangle with certain values attached representing each of these three compared with each other. Where the earlier discussion was mainly regarding the number of game mechanics in play in relation to the value they represented to the stakeholders the element of play also comes into play. Play representing components that are introduced for the user alone and adds value to them, but has no effect on either the game or the goals of the system.

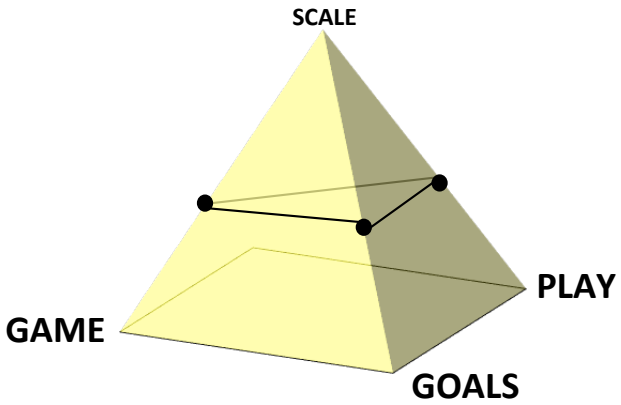

Figure 3 Game experience from a play, game and goal pyramid perspective

The pyramid (fig 3.) is an excellent tool when looking at the type of experience your service wants to impose on its players. Finding the balance between playing, gaming and goals will not only establish a rough picture of the size of the system and the time needed to design it, where both of these also introduce development costs. The volume of the pyramid also gives an initial indicator of requirements for support and maintenance the system will require. It can also be used to present a development path to describe the complexity of forthcoming releases and what types of additions are planned.

5.5.2 Player journey

Player journey is a term often used to classify a player familiarity with the gamified service where Yu-kai Chou has 4 Experience Phases of a Game: Discovery, Onboarding, Scaffolding, and Endgame, and Kevin Werbach's theories of Identity, Onboarding, Scaffolding, and Mastery. Where the middle and end are slightly different but most such descriptions are similar to these two with only minor differences. When we adjust these for collaboration there will be certain differences.

With the entry into the system would be similar for most gamified services, the onboarding opens the coaching component as an option for more proficient player to help newcomers into figuring out how the service works, what options are available, what are the do's and don'ts, special phrases or abbreviations that are used when communicating. As a collaborative service has a better sustainable potential if there is a certain complexity involved that is often overwhelming for new users. The coaching is one option to increase the number of users that continue to invest their time as they are guided to the point where they can start their path of mastery themselves, or in this case mastering with others through casual or intense collaboration.

Secondly the element of mastery is not just achieved as an individual, but as something the player achieves together with others through collaborating and face challenges as a group. The journey for a collaborative service is always about 'travelling' with others, and establishing a 'journey' like this would have been beyond the scope of most of the established design frameworks. The fact that it should be a requirement is troublesome at best as there is no solution for how to design such a journey once the complexity goes beyond Guitar Hero or Mario Brothers. Its is the 'raid' version of a gamification service which there are no examples to present at the point when this thesis is written.

CURE RECOMMENDATION

Be aware of the two different player journeys, the of the player and that of collaborative groups e.g. the collaborative artifact.

5.5.3 Meaning

Answering the question of why to play is also what will create a reason for a player to spend time playing as well as give meaning to this investment. And what gives meaning to the player might not be the same as what gives meaning to the stakeholders, but nonetheless a connection between the two increases the chance that the user will opt to 'help out'. Due to the proposed requirement of transparency it is also in the stakeholder's interest that the user is aware of how their efforts are being used and that it is somehow connected to their game experience.

CURE RECOMMENDATION

Ensure that the game experience gives meaning to both the stakeholder as well as the user. They might not share the same goals, but they are both seeking to reach these goals through the gamified service.

5.5.4 Mastery

There are three perspectives to mastery in a gamified service experienced through the player journey. In the case of most games the difficulty and size of the game increases as the player progresses and continues to challenge the player through exploring and mastering this new content. In other situations, the player already is a master, and it involves an activity the player already knows how to do or involves a topic of which the player is already familiar with. The game merely gives the player an opportunity to experience this in a different or alternative setting and possibly help motivate the player to engage in the same activity. Finally it is about mastering collaboration, which requires game components to help track activities that can be used to give feedback to the player regarding successful collaborative endeavors as well showing success in collaborative activities as part of a player profile.

All three alternatives will require different game mechanics to assist the user in mastering, or continue to master, one or more activities. For large scale solutions, adding all of these components of mastery will assist in motivating for different styles of play, and keep all players interested and challenged.

CURE RECOMMENDATION

Mastery is considered a major motivator for gamification, where this companion focuses on collaboration this is also the chosen type of mastery to focus upon.

5.6 Design issues and risk analysis

Collaborative gaming has certain challenges and risks, that are less common or not relevant at all, compared to services with little or no direct player interactions. The primary risk area for CURE is within the collaborative area as both communication and cooperation can be thwarted or abused, and even if outside hacking is a possibility the largest contribution of unwanted behavior will come from the players themselves.

5.6.1 User risks

The most prominent and highest risk factor for any collaborative system is addressing unwanted behavior in a positive yet firm manner. Certain 'types' of users pose a direct risk to such systems both on a service level as well as with the community at large. The most basic of these being 'haters', 'trolls', 'spammers', 'cheaters', cyber bullies and predators.

- Haters are users that go out of their way to enforce their views or goals unto other players in a hostile or rude manner.
- Trolls are users that through provocative or deceptive communication lure people into discussions or conversations where the intentions are of a negative nature and often with the intent of ridiculing other users if they fall for their verbal traps.
- Spammers are users that are promoting either external or competitive services as well as services that are harmful to the game balance or its community.
- Cheaters go out of their way to find ways to cheat or abuse flaws in the system for their own gain or to ruin the game experience for others.

- Cyber bullying is an issue here as in most other forms of social media and may not always be easy to identify, and thus relying on external reports of such behavior.
- Predators are hunters that go after their 'prey' whatever this might be. Even if such behavior is difficult to pick up on, it is also where the responsibility of the stakeholders is absolute and the public being extremely unforgiving, and especially when children or women are involved.

Some of these can be handled through proper filtering and rules of conduct, but neither of these are a guarantee to avoid such behavior. To conclude these user behavior issues require a proactive and visible support team to also handle user issues beyond those of a technical and software related nature.

None of these are usually of a criminal nature, but many of the same surveillance and control mechanisms can and should be used to identify such behavior and report it to the proper authorities in addition to the internal routines established to address such issues.

CURE RECOMMENDATION

Plan for having a high awareness on these issues and insure that both proper surveillance and support is in place with proper guidelines to handle any of the behavior risks mentioned above.

5.7 Conclusion

CURE is designed with primary focus on the four components collaboration, users, rewards and experience. Special attention was given to the sub-components communication, cooperation and collaborative artifact for collaboration and roles were added to users. Multiple additional components were identified and analyzed and integrated with one of the four main components. There is little doubt that these components would add value to a collaborative gamified service, but for an initial comparison with the five frameworks would expand this thesis beyond its scope and is therefore a natural part of the future work described below.

None the less, when comparing CURE to the chosen components with their visible counterparts in the generic framework descriptions and structures the complete score chart table should naturally go in favor of CURE.

Table 8 Complete score chart for all frameworks including CURE

	Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
6D	**2**	**2**	**2**	**2**	**4**	**2**	**4**	**2**	**20**
Octalysis	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**20**
SGI	**2**	**2**	**2**	**2**	**4**	**2**	**3**	**3**	**20**
Loyalty 3.0	**4**	**3**	**4**	**2**	**4**	**2**	**2**	**3**	**24**
Skill Atoms	**2**	**2**	**2**	**3**	**5**	**2**	**4**	**4**	**24**
CURE	**4**	**4**	**4**	**5**	**4**	**5**	**4**	**4**	**34**

These values are primarily how CURE is intended to work, but it has not been tested nor compared in detail with these frameworks. The frameworks chosen contain additional information, details and components that are not a part of their presented framework model, and a complete comparison would change the values used for comparison above. But as also noted CURE contains additional components that would have to be introduced in such an analysis.

6 Case studies

To test the above estimated values of CURE's primary components two case studies were chosen as candidates for collaborative gamification using the companion. Each solution was then presented to their respective stakeholder for evaluation.

Induct (Induct Software AS, 2007) is an innovation software platform where the purpose is to motivate its users to generate new ideas, elaborate on these and supply feedback on such ideas or on similar business artifacts. They already have a software platform that has some of the components CURE introduces, and the primary objective for implementing the companion is to increase user motivation for interacting with the service and to add collaboration as a major component for the overall user experience. Gamification has already been successfully applied to innovation services like Spigit's Idea Street (Adewunmi, 2012; Lawrenson, 2013; Spigit, 2015), and some of Induct's competitors are already promoting gamification as part of their service (IdeaScale, 2015). It is a natural step for Induct to look for a cutting edge gamification solution to stay ahead of the curve.

Biocaching (Albin Larsson, Alice Polenghi, Davide Rapotez, Peter Bremer, & Bjørn Hjelle, 2015), in comparison, is presently at the planning stage of a mobile application where one of the goals is to engage a large user community in bio-diversity and environmental data gathering. They are not the first attempt at engaging users to contribute this way, services like QuestaGame (QuestaGame, 2013) and iNaturalist.org (Nate Agrin, Jessica Kline, & Ueda, 2008) are already working a similar angle as well as several other related projects that have had success with these types of data gathering (Ian McCallum et al., 2015). So would CURE and collaborative gamification be able to introduce something new? QuestaGame is already actively using gamification techniques to their service and adding their content to existing game environments like Minecraft (Markus Persson & Bergensten, 2009). iNaturalist.org is not focused on gamification per say, but they have implemented crowdsourced identification of species and the creation of projects adding collaborative components to their service. The question remains; can CURE introduce a more complex gamified service that has the potential of finding a place among such services? A conceptual service was created and presented to Biocaching's stakeholders.

Both cases present a rough description of what the companion in this thesis could offer focusing on the four main areas of CURE. Although this does not offer any actual feedback as to the collaborative experiences of actual users, it works as an indicator as to the value of the companion from a stakeholder's point of view. Their feedback was collected and used to evaluate CURE's potential.

6.1 Induct Software

"Induct is a powerful and sophisticated cloud-based innovation community delivered as software as a service made to help organizations to increase their level of sustainable innovation capability."

The platform is built based on a innovation methodology and access to a cloud-based user community.

6.1.1 Innovation management methodology

Our methodology framework is a combination of four topics we consider to be essential for successful innovation by any organization (see the four headings below). We firmly believe that software cannot make you innovative, but it can support the strategic framework you adopt to drive innovation. Software can also help you organize, document, and leverage more value from your work.

Strategy and goals

For innovation to be successful, the strategy and goals of innovation, and those of the organization *must* be aligned. This alignment creates a foundation for decision-making during the innovation process. It eliminates uncertainty as to whether you are doing the right things and making the right decisions, and gives you a basis for measuring the strategic value of the outcomes achieved.

Management and organisation

Organizing for innovation is organizing for success. Planning how to distribute responsibility is critically important, as is gaining commitment from the management team. Our methodology explains how to build a strong innovation-force with clear roles and responsibilities for everyone involved, and an operating calendar that guides, fosters and helps track innovation within the organization.

Processes, methods and tools

The innovation process described in our innovation methodology consists of three phases: the front-end phase, the back end phase, and the learning phase. It is possible to achieve innovation without a supporting software tool, but the right software can greatly enhance the efficiency and effectiveness of innovation initiatives. Our mission is to increase your innovation capability, and our software supports this from start to finish. From the moment you first seek and capture ideas, Induct will aid you in developing, evaluating, testing, implementing, measuring impact, collecting and sharing learning's, monitoring all this, and producing reports on it.

Culture and people

> "Innovation can no longer be confined to some specialists within a firm. It must become a part of the company culture."
> Dr. Henry Chesbrough

There are many ways organizations can make innovation an integrated part of the company culture. Leaders can visibly encourage innovation initiatives, and build a common understanding of what innovation is, why it is so important, and how to contribute to it. Communication activities can be used to grow and maintain engagement and momentum. Organizational policies and practices can be aligned with innovation goals. For example, rewards, recognition and performance management systems can be tailored to support innovative behaviors. The Induct methodology and our professional services help guide such cultural development.

6.1.2 Cloud-based user community

Induct offers cloud-based innovation communities, delivered as Software as a Service, that enable organizations to create, manage, track and measure the innovation process from idea creation through to final implementation and impact reporting.

In addition to significantly improving the innovation potential within an enterprise, Inducts platform is unique in its ability to facilitate collaboration across communities of customers, partners and suppliers.

6.2 Case proposal - Open innovation and Induct

With an existing platform already in use this is an upgrade of an existing service and as such might suffer from limitations from the existing service. Taking into account the growth in mobile gaming this is a portal that would enable this service to broaden its reach. Induct has an existing population from earlier innovation projects and is looking to give these users access to a collaborative gamified service in addition to their exiting innovation platform.

6.2.1 Collaboration

The collaborative core of CURE is built around communication, cooperation and the collaborative artifact. The first two of these components already exist to a certain extent so a gamification upgrade will focus on areas of communication and cooperation. The collaborative artifact is another matter all together as this is a different entity that exists only inside the gamified service. In addition to the stakeholders goal of harvesting both user generated data as well as possible user interaction data, it is recommended that the user also has access to what data is taken out of the system and to a certain extent be given control over any collaborative artifacts and choose when and how this ownership is passed on beyond the boundaries of the gamified service. At this point it is very likely that the stakeholders will be questioning this, but there is one more aspect that will be uncomfortable for these stakeholders to accept, once inside 'the game' balance and transparency is to be considered an absolute requirement to make this endeavor work. The only exception could be the introduction of support members given access to operate inside the gain to assist players inside the virtual environment. Now this balance will work to the stakeholder's advantage at a later stage and provide a smoother game experience for the players. A high level of trust between user and stakeholder creates a safe environment for the user to operate. It is this trust that will have the players part with their collaborative artifacts as part of the gamified service and allow its content to be taken out of the gamified service.

Communication

With an already existing system for communication integrating this with the gamification specific services the more this can be introduced into a collaborative gamified system the less additional development would be required. Chat channels covering player-to-player communication, group channels and service wide channels. In addition to these a billboard or market service can stimulate exchange of services and virtual goods, and a mail service allowing players to trade and communicate also beyond the real-time aspect. Integrating with external social services like Facebook and Twitter is an easy

way to support a service community, add additional options for coordination and also additional channels for marketing and user awareness of the existence of the service. Such integrations also promote additional transparency that can result in both positive and negative reactions based on the stakeholder's goals for the service are.

Cooperation

There are two requirements that would be positive to include as part of the gamified service to drive its main purpose; to generate and develop ideas to a point where actual testing is the next natural step. Abilities and interactions with the collaborate artifact and with game components that promote player interaction also beyond the communication and collaborative artifact. Possible solutions are the addition of trade and creation of virtual commodities not possible without interacting with other players or challenges beyond the collaborative artifact that require certain roles to be a part of a group to complete the challenge and be able to progress with their role and receive other rewards that give them an advantage when interacting with the service in certain situations.

Collaborative artifact

Having already established transparency, balance and trust as components, a collaborative gamification service gives the users a clear understanding of what interacting with the service requires of them and works to motivate the users to invest their time inside the virtual environment already before they become a part of it. It also makes them more likely to collaborate and complete collaborative artifacts, and if this result in the right kind of rewards they are likely continue investing their time with the service.

A basic version of a collaborative artifact should avoid becoming to complex, and for this proposal its creation is a unique ability for one of the proposed roles. Any role can generate ideas, but only one is able to take an idea and create a collaborative artifact containing the idea and up to a full set of roles. The introduction of these open spots is the initial collaborative motivator. If a role is unable to create collaborative artifacts it will require the assistance of such a role. Once the artifact is created it is the development of this artifact that drives the players, where each role is able to add value and become a part of this development. A role, based on its progress, can only be involved with a certain number of artifacts. This ensures that the player does not invest in more artifact than they can handle. As the player progresses and is able to complete artifacts they will be able to invest in additional artifacts. Finally this is a gamified service it is not just about an idea growing, but also the collaborative artifact itself by the addition of more players, more content and more visibility.

This proposal also suggests to allow users to move some of their collaborative efforts to 3rd party software outside the service such as Google Docs or communication software that allow collaborative interactions beyond basic chat functions. Keep in mind that importing such data and attaching it to the collaborative artifact would need to be developed, or create an open source API and let the users themselves help create such services according to their own needs. Also other parties, such as interested companies or other 3rd party investors, might be interested in introducing such additions to motivate the players to tailor their collaborative artifact according to their requirements.

Once a collaborative artifact is considered complete its content and ideas are still the property of the users that created it, and part of the gamified service is that it can be traded. One solution could be to allow interested companies and organizations to generate players with roles that allow them to 'purchase' collaborative artifacts, and their presence would also work as yet another motivation for the players to complete their artifacts. Such a role could also be given the option of generating challenges to stimulate players to focus on certain ideas giving them yet another visible presence within the gamified environment. Another solution could be a marketplace where an artifact can be sold and through this exchange also be transferred out of the gamified service and into the hands of a company or organization that is interested in taking the idea further.

6.2.2 User

Having an already existing pool of users this part of the collaborative gamified service should require no extra development beyond the additions of gamified rewards that are available also beyond the gamified environment (see below).

Roles

The primary collaborative addition to gamified services that CURE introduces is player roles. For Induct and any other stakeholder looking to create a collaborative gamified service, these roles represent both a motivator to collaborate but also a tool to both balance the game as well as direct the players to certain activities or challenges. Induct would have two options as to how to introduce such roles; as a single game component with a fixed set of roles available to all players, or a multiple game components where each of these represent a set of roles giving them abilities and access to the service different from the others. This can be addressed through two examples to present how these to options would look like on a conceptual level;

Single game component roles

When initiating this service a set of highly active innovators will kick-start the availability of artifacts and assist in initiating collaboration once the service goes live. To keep this suggestion simple only three roles are presented, including short descriptions as to what unique abilities they bring to a collaborative artifact;

- Creator; the role able to create collaborative artifacts and in control of adding more players to the artifact.
- Promoter; a role able to generate more visibility of a collaborative artifact within the virtual environment and adding spots for additional roles. Without these spots the creator will not be able to add more players to the artifact.
- Producer; a role able to add additional types of content to a collaborative artifact, and increasing its details and content. As each role initially is only able to add a single piece of content once they become a part of the artifact, this roles is required if the collaborate artifact is able to grow with a limited number of players attached to it.

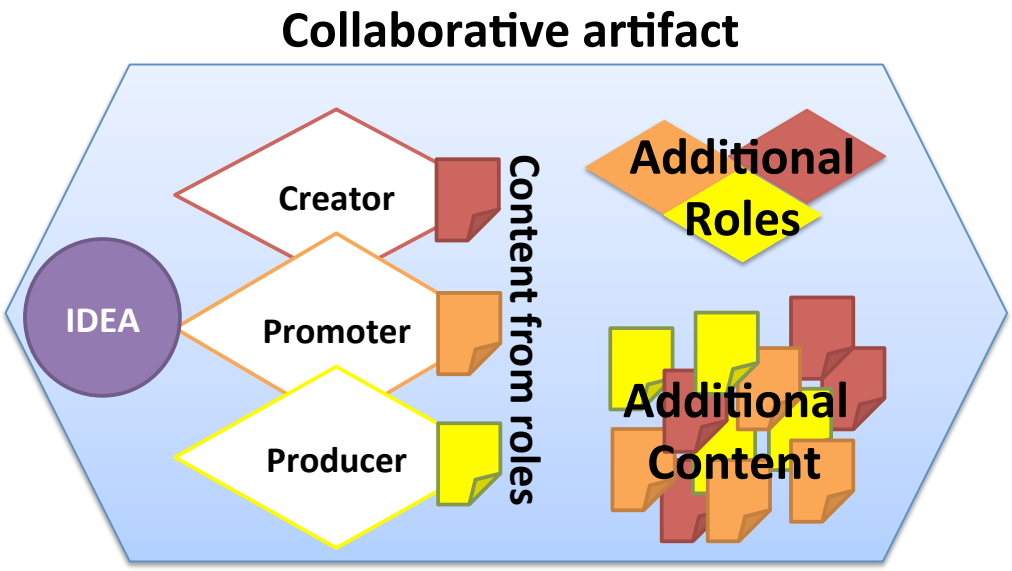

Figure 4 A visual example of a collaborative artifact including the idea, roles and content.

Multiple game component roles

Initiating a service with multiple roles is more difficult than one with a simple set, but holds more options for a long-term sustainable service. Balancing multiple roles is also a challenge, but one that introduces options for simple changes and upgrades that makes the service feel more 'live'. A static service will always suffer over time. For multiple roles three sets of roles are introduced with more specific abilities that allows the players to be more creative in developing their ideas.

- Generic
  - Innovator; create collaborative artifacts
  - Manager; able to invite new players to connect with the artifact
  - Recruiter; able to create more spots for additional roles
  - Publisher; able to create additional content components
- Experts
  - Specialist; able create unique content components for a collaborative artifact based on their expertise
  - Commentator; able to increase the size of existing content components
- Investors
  - Financer; able to purchase complete collaborative artifacts and bring its content beyond the gamified service.
  - Media; able to create challenges and promote ideas they feel are interesting or would like to stimulate its growth.

All of these roles could have multiple additional differences and unique abilities, but each addition of such 'powers' require additional balancing of the gamified service as well as additional game testing to ensure they are working as intended. There is also the question if they add value to the player experience. On the positive side, the more personal and unique a role gets the more the user will be immersing with it and bonding with it, and especially so if there are

proper play mechanics in place to give the role a personal image within the gamified environment.

Progress and levels

The more ideas and content created, the more challenges or artifacts completed will all help the players' roles progress and possibly gain 'levels' if such a game components is chosen. As a role progresses it gains access to additional content, and the more advanced the role becomes, the more it will be able contribute to and add value to artifacts. It also shows how much a player is invested in the service and ability to interact with the game components. Depending on how many steps are chosen for a player journey this type progress goes hand in hand with a player journey as the player moves up to the stage where the gamified service does not have any additional progress available, but where the challenges and demands for collaborative artifacts have the most advanced requirements. This is also where the service will need upgrades and changes to keep the user invested in contributing and continuous play.

Stats, skills and abilities

As all roles have special abilities these will require additional attention so that they are properly balanced. If the roles are given free access to the use of their special ability the service has the risk of being flooded with such activity and overloading the service. Best option is to give the abilities limitations with the options of reducing these limitations as the roles progress.

Another suggestion for Induct would be to let each role also progress in a few skills, either available to all or specific to each role. These skills can be invested in one or more collaborative artifacts the player wants to connect with, and only artifacts they do not have an active role with. The value of the skill is the value the role has available to invest in collaborative artifacts on a daily basis. The collaborative artifact receiving these stats will gain additional attention as well as open up additional ways to complete the artifact through added player spots and content. Having a good idea is one thing, but having other players invest enough skill values in an artifact requires collaboration through cooperating with other roles by trading skill values. A role may of course choose to invest their skills purely from an individual perspective if they wish the artifact to succeed. Such interest might be a way for the members of an artifact to recruit, but most importantly such investments should be rewarded if the artifact is picked up and the role has been a loyal skill contributor for a certain amount of time. This type of game mechanic is very likely to become a commodity players will trade, sell or invest and become a part of another area where roles will communicate and cooperate.

Common abilities

As mentioned earlier all roles will also share certain abilities that are not role specific. Conceiving an idea is available to all roles and only requires an idea headline and a short description (limited to a certain number of characters or words). But any such idea requires a collaborative artifact to go any further, and it is up the role that 'owns' the idea to make it available for such a 'pick-up'.

All roles will also have a limit to how many content components they are allowed to complete during a week. This will limit the total time a user will be able to spend on the gamified service itself, but the user is free to work on their ideas

outside the service to later add such work to their collaborative artifact. As a role progresses it will be able to complete more content components. A player that has invested their time enough to progress will also be familiar with how these content components works and are likely to spend less time completing them.

6.2.3 Challenges

A company can add a 'challenge' to the game. A challenge can be related to the creation of a collaborative artifact with a specific goal, or it can be directed at specific artifacts and add specific content component to them. Each challenge has a certain set of criteria and once these are met a reward will be given to the collaborative artifact itself by adding more role spots, adding content components or skill values. Such rewards should also reflect the challenge and be relevant to its completion. Companies will also require guidance as to how to generate such challenges, but the choice of giving companies this ability or having someone from the service support team assist them with these is mostly a matter of the amount of time the service support team will have to have available to handle their workload. or to is more likely to get 'picked up' when it has matured enough,

6.2.4 Rewards

Rewards for challenges have already been mentioned and are components that exist purely inside the gamified service. The challenge for Induct is the introduction of an extrinsic reward that also has an intrinsic value to the user. Participating in creating and contributing to the realization of an idea is in itself a rewarding activity, but even more so if the user has something to refer to once the idea is picked up by a company for further development and testing. For the Induct platform a proper extrinsic reward would be exactly that; a certificate describing the users participation and development of the idea and if possible naming the company or business that chose to bring it out of the gamified system. A digital certificate is easier to work with, and can also be easily attached or shared with 3rd party services like LinkedIn or Facebook.

6.2.5 Experience

Presenting the simplest and most advanced version of a collaborative gamified service built upon the Induct software platform:
No play, medium game and low goal
Some play, high game and medium goal

The best potential of this collaborative gamified service is its game element, but it becomes a question of how much the output adds value to the goals is worth compared to the time and effort required producing the service. From a game perspective the game potential for such a service is massive, and seen in possible competitive services the introduction of gamification in such services is on the rise. By pushing the boundaries such a service would have very little competition in today's market.

The primary game experience for the player in this proposal is to have the opportunity to progress with a role and master its abilities and challenges, and

through this be a part of an innovation community. Whether they choose to invest their time with a role they are already familiar with or one they wish to master, or one they are unfamiliar with or just want to try out, is part of what allows such a gamified service to be a diverse experience. Even more so due to how a users role will give new insights into the topics within the collaborative artifact connected to a wide range of ideas and their connection to real business activities, services and solutions.

And finally the experience beyond the gamified service; in simple terms the user is given the opportunity to contribute ideas and receive actual credit for the time spent and work invested through the certification rewarded for collaborative artifacts selected for testing beyond the gamified service.

6.2.6 Conclusions

Will this actually work? Looking at actual numbers from a process before and after it has been gamified might give us some data to work with. So what is the suggested outcome of adding these game mechanics to an innovation process?

1. To generate more new ideas
2. To generate more focus on the ideas
3. To add user generated content and additional input to the ideas
4. To get more people involved and invested in the ideas
5. To establish a user driven ranking of ideas

Compare the number of ideas created with earlier project of a similar nature. Measure focus based on how many people interact with an idea. Measure involvement and investment based on how much interaction/attention people give the ideas. Evaluate the value of the user driven ranking system. Each of these are part of the success criteria that this case study hopes to solve.

And to quickly summarize the suggested service;

1. Focus on collaboration by upgrading communication, conceiving ideas, cooperation and adding the collaborative artifact.
2. Added roles and establish how these can be used to promote collaboration and add content to the collaborative artifacts.
3. Create an extrinsic reward that motivates intrinsically; suggestion is a certification describing the users involvement with the production of the collaborative artifact including what company that chose to take it further.
4. Plan for a sustainable solution; there is a definitive potential for collaborative gamified open innovation if the users end up with the right game experience when leaving the service for the evening and a positive motivation to stop by the next day.

6.3 Biocaching

Biochaching is a new application with a very limited gamification profile, but looking for a more elaborate and sustainable solution. The original idea for this application was generated as part of #Hack4no 2015, and won a reward in the category “Most Useful for Society”. They have now moved on and are working on developing the concept further, studying available biodiversity services, and prototyping. With the attention they have already gained for their efforts and

ideas, there is a potential for this service if they are able to produce a service that is able to cover new ground and introduce a unique user experience.

6.4 Case proposal – Biocaching

Having already chosen a mobile platform, the fastest growing gaming platform at this time, Biocaching has access to certain services that are already normal in today's smart phones; a camera and GPS location services. This platform also introduces certain challenges regarding user-generated content and integration with 3rd party software and web services beyond those Biocaching choose to include themselves. A mobile platform has certain limitations, but adding another platform is an idea for a future release and not part of this service proposal.

6.4.1 Collaboration

A collaborative artifact would normally be a central piece of a gamified service, but for Biocaching it multiplies into several collaborative artifacts containing different sets of data and requiring different approaches from players to interact with them. A picture of a fox might be included in a larger artifact for the areas in which the picture was taken as well as a larger artifact covering fox observations on a larger scale. But in this scenario this creates an opportunity rather than a problem, and makes collaboration easier.

Another important challenge is differences in user groups, from children to adults. Collaboration and children requires special attention and becomes an area in itself for the implementation of CURE and is specifically commented upon throughout this case proposal.

Communication

Most types on basic communication are already available on a smart phone today, and are easier integrated than implemented. Adding tools for randomly connecting with different roles to take on team challenges or becoming part of a larger group of other players takes communication to a point where simple interactions can be introduced.

Cooperation

Using communication to hook up with other players makes cooperative game mechanics easier to introduce. Cooperating with other players either generates different types of data based on what role they have chosen, and even identical roles could be able to add different types of data. In addition it is worth noting that cooperation for Biocaching is better suited for a weekly game perspective making for a casual approach rather than a stressful one.

Collaborative artifact

From a stakeholder point of view the collaborative artifact might be a simple one containing basic data transferred to international and national species databases. Inside the gamified environment the potential of such artifacts are much larger. The creations of simple artifacts, combining them into larger artifacts, picking up smaller artifacts and include them in a larger ones are all activities that can engage players and motivate them to collaborate. From a data perspective these artifacts can act statistical puzzle pieces or building blocks that are available for gamification and add game components that are fun to play with, even if their usefulness might not be valuable outside the game environment.

Children

Ensuring that the collaboration does not require connecting beyond the service is one way to safeguard children when cooperating with others within the gamified environment. Another is to remove options that might allow for such activities from players under a certain age limit, or add settings for adults to control which players their child can engage in collaborative activities with. Part of the game experience of Biocaching includes adventuring into nature together to gather data together with other users.

6.4.2 User

Along with the normal requirements for users, Biocaching also includes children that require an extra set of variables and possibly mechanics to connect children to their respective family members and friends with whom they can safely interact with in the outdoors.

Roles

The primary collaborative addition from CURE to the Biocaching service is the introduction of player roles. Representing both a motivator to collaborate, a tool to balance the game as well as directing the players to certain activities or challenges. The following roles are examples of possible roles for a service such as Biocaching;

Suggested roles

1. Explorer; the most casual role that has the ability to create an unlimited number of data deliveries into the service.
2. Hunter; a role that has access to targeted challenges focusing on a specific species or area.
3. Tracker; a role that is out to copy or confirm data entries from other roles by producing a new set of data similar to an existing one.
4. Facilitator; a role that has access to an unlimited number of verification puzzles
5. Naturalist; a role able to approve a set of data (only available to qualified users)

Explorers are the role suggested for new players and also the one most compatible with a random walk in the forest or along the beach. When cooperating with other roles, the ability to create an unlimited number of data deliveries makes them a valuable asset to any team by allowing the team to collect a vast quantity of data making it easier to progress, to reach goals and complete challenges. The explorer is on the other hand not able to take on challenges and need other roles to gain access to these.

Hunters can only gather data specified in targeted challenges, but are limited to a certain number of data deliveries. When teaming up with other roles they gain access to their abilities and challenges, they will also receive additional useful data regarding such specific targets.

Trackers can take on challenges that aim to copy or verify already delivered, and they also have access to a certain number of observations already made in a specific area. When teaming up with other roles they gain access to earlier

observations of the teams targets and will be able to freely deliver copies and verifications of such observations.

Facilitators have unlimited access to verification and identification puzzles and challenges that are randomly generated by the service. Other roles will only be able to take on a limited number of such challenges. When teamed up, they are able to take on such challenges on the observations made by the team immediately.

Naturalist is a special role with two very important abilities; they can confirm and approve data deliveries and create challenges. When approving data, these are moved into a collaborative artifact where the player or teams that generated the data gain ownership of it. The basic naturalist will only be able to generate a few such challenges.

Challenges

External organizations and qualified scientists can also be given access to the gamified service and generate challenges to gather data relevant for research purposes.

Leveling and progress

For Biocaching to be sustainable over time adding leveling and progress is a good way to motivate players to continue their quest for data. Gathering data progresses the role towards the next level, and with each level their abilities improve. The explorer might become more diverse and gain access to controlling collaborative artifacts, the hunter be allowed to perform more data deliveries and the trackers might be allowed to verify observations also without have a challenge. At certain stages the roles might also gain access to specializations that opens for even more diversity and different ways to cooperate.

Stats, skills and abilities

Once specializations are made available, the player will again be faced with making a choice as to what path the role will be following. Choosing a specialization adds more abilities to the toolbox the player has access to through the role. Specializations such as ecology related to specific areas or types of nature; botany opens the door to details in the world of plants; zoology shifts the focus to living creatures. There is no limit to how diverse the game experience can become, but the idea is to let the players always have new goals to strive for and new variations of data gathering.

6.4.3 Rewards

Rewards are perhaps the biggest challenge for this service but still a critical one to help motivate certain users into spending their time outside. Certainly some users will be happy to participate purely for altruistic reasons, but some will require some additional persuasion. The most difficult of such rewards is the one the users can enjoy beyond the game environment, and a balanced form of game related merchandise can be a valuable solution if handled correctly. Beyond the obvious sale of such items they need to be connected to the game environment for it to become relevant to the player activities within the game environment without making it all about pursuing their next t-shirt or coffee mug. Using basic game mechanics there are several ways to solve this;

1. Certain virtual commodities can be used to generate a rebate on a specific item from the merchandise collection.
2. Create a randomized selection of players to receive an item possibly based on certain game related criteria being met.
3. Gaining access to certain merchandise items that are otherwise unavailable to others, possibly also making them personalized based on the players achievements, role, virtual commodities or similar.

The most important element for these items is that the financial gain equals the cost of having such a practice as part of the service. Also worth noting for this solution is the added marketing value such items would have outside the gamified service.

Based on the evaluation of the game experience that could be presented to the players the addition of non-goal oriented virtual currencies and commodities are also an option to connect the players with the virtual environment as well as the one outside. One simple example is the basic introduction of avatars personalizing how the player's role is represented in the gamified environment. Once avatars are in place, the looks and gearing of them is a common way to let users personalize their avatars. Another possibility is to add a home to be filled with game related items. The perhaps best addition would be the introduction of pets and plants. Taking a picture of an animal is one thing, but being able to bring it home afterward is something else. And once such animals and plants are brought home they need to be cared for. Which makes it natural to add challenges to gather special foods, items for the pet's surroundings, again the possibilities are unlimited. Biocaching does not need a full inventory at launch, but this type of addition to the gamified service is an easy way to add content.

6.4.4 Experience

The major experiences for this application are to be in nature, making an extra effort to observe and interact, to gain knowledge of animals, insects, plants or even a geographical area. None of these are directly connected to the gamified service, but this service has the potential of becoming something fun also when one comes home. Combining play and game as the major components of this case solution gives minimum and maximum pyramids look like this;

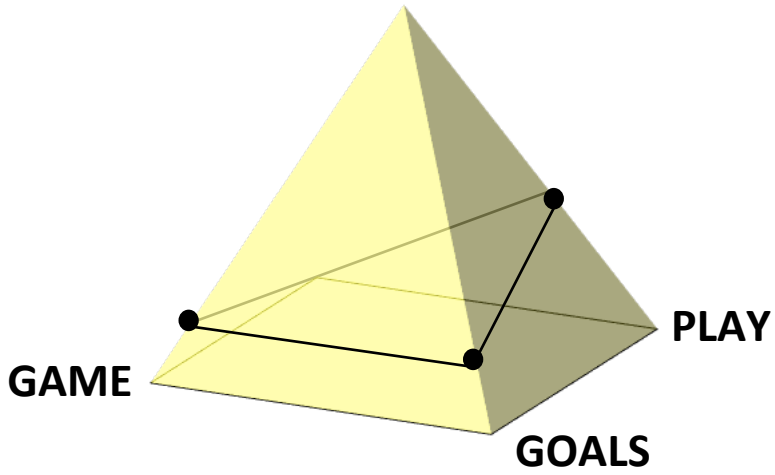

Figure 5 Minimum pyramid; medium play, low game and low goal activity

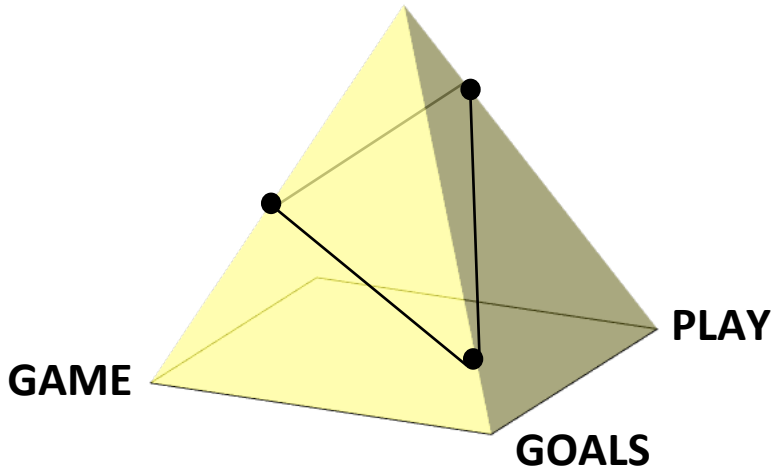

Figure 6 Maximum pyramid; high play, medium game and low goal activity

This set-up opens the gamified service to also be played at home, and adding the verification puzzles there are multiple activities contained in the gamified service that do not require the user to be outside.

6.4.5 Conclusions

The primary goal for using CURE is to add collaborative gamification, and the success criteria for this introduction would be:

1. To promote collaboration while collecting data
2. To give the service a more social aspect
3. To make the service more playful
4. To give the users a reason to interact also when inside
5. To let the users make the game experience more personal

Making these criteria succeed requires additional game design that would not be part of CURE, but where a game oriented gamification framework like Deterding's 'Skill Atoms' would be a good choice.

And to quickly summarize the suggested service;

1. Focus on collaboration by adding and upgrading the collaborative artifact.
2. Add roles and establish how these can be used to promote collaboration and add content by interacting with collaborative artifacts.
3. Create an extrinsic reward that motivates through expanding the service with a portfolio of game related merchandise.
4. Aim for a high level of play, and create a sustainable solution by introducing additional game content through player progress.
5. Expand the arena for play by adding more interactive items for players to collect as well as expanding the pet and plant concept.

7 Case feedback

Both companies that received their respective case proposals were also informed that this solution did not include any pre-designed gamified service for the companion to enhance. Both companies were asked to comment specifically on the CURE components and rate them as either positive or negative according to the four main components. Both companies supplied feedback, and were interested in trying out the suggestions in the near future.

7.1 Induct

Induct is presently evaluating the use of gamification as a possible enhancement of their present software platform. The platform has already tested a few simple gamification components without experiencing any real value added to their platform. They are presently re-evaluating the use of gamification for their innovation platform, but are aware of the fact that a simple solution will not be enough. Their initial feedback was of a positive nature and they are presently reviewing CURE in detail to decide which components they are interested in developing and testing.

7.1.1 Collaboration

Induct already has a software platform that has several collaborative components included, and would naturally prefer to either implement these directly or integrate them with the gamified service.

7.1.2 Roles

Roles were considered both as promising and also a new gamification component that they were unaware of. They would like to explore this component further, and look into different combinations and number of roles.

7.1.3 Rewards

The idea of an external reward in the form of a certification of the users participation in the innovation process of a collaborative artifact was very positively received and a component they would very much like to introduce in some form.

7.1.4 Conclusion

Induct was both positive and curious about the proposal they were presented with, and are presently reviewing the different components with the intentions of deciding which of them they would like to explore first. They were also aware of the fact that introducing gamification accompanied with the added collaborative components would be a larger project than anticipated.

7.2 Biocaching

Biocaching initially established that they were seeking a collaborative solution to set them apart from similar services as well as creating ‘a more fun and engaging user experience. They were on the other hand concerned about the gap between gamers and non-gamers where it is a difficult task to reach both target groups. The simplified solution they are working with today has ‘opened many doors’ for them due to its easy accessible concept. Overall feedback; positive versus

negative – would they want to know more or did the case suggestions reduce their interest in implementing collaborative gamification into their service?

7.2.1 Roles

Biocaching first commented on the suggested use of roles that they felt was a very valuable proposition with some easily understood and with a clear purpose in the gamified service. The other roles they felt would need a bit refinement, but they understood the collaborative value it added to the service. They were positive to the overall concept of having users team up and have more 'power' than individual users. They were also considering pursuing other possible roles to enhance the service.

7.2.2 Collaborative artifact

Their present gaming artifact is a very simple construct with a fixed set of data. They were intrigued by the creation of a composite collaborative artifact, but found it unclear to be built into a gamified service as a generic extension that would be easy and intuitive for the players to relate to. They felt this would be a component that would require further investigation.

7.2.3 Player progress

They were positive to the idea of players progressing and leveling their roles and gain access to additional functionality through completing artifacts.

7.2.4 Rewards

They were very skeptical to adding merchandise as a possible extrinsic reward even if they understood that several of the alternative game mechanics such as points and badges would also have an extrinsic value as games are understood today. In short they felt that such extrinsic rewards would create a distance between the user and the game.

7.2.5 Conclusion

As a whole they were very positive to the proposal with many useful propositions for adding collaborative concepts to their application. They felt that some of the components would be easy to adopt and test as part of their future development, but others would require additional investigation and possible refining before they would be considered.

7.3 Appraising CURE

Rating the feedback as positive, neutral or negative we re-visit the score chart and add these adjustments for both case studies. CURE is then re-evaluated accordingly to establish a new score set based on this feedback. The CURE scores from the initial evaluation are only adjusted if both case studies have given identical feedbacks of a positive or negative nature, limited by the possibility of actually increasing it, as five is already the maximum possible. No such limitations are needed for decreases as the scores are already estimated as strongly positive.

Table 9 Case study feedback and updated CURE scores

	Collaboration	Communication	Cooperation	Collaborative artifact	User	Roles	Rewards	Experience	Total
Induct	+						+		+6
Biocaching	+		+	-		+	-	+	+3
CURE	5	4	4	4	4	5	4	5	35

The feedback suggests differences regarding the usefulness of the different components, which would be expected due to the different needs and goals of both services. On an overall scale the total feedback would suggest that CURE scores even better than anticipated, but that this feedback is only an indication as to how it would fare in other scenarios as well as in an actual test situation with user or game focus. These are all relevant areas for additional research that are likely to yield additional feedback with the possibility of both strengthening the case some components while weakening others. But the immediate feedback received is overall positive and open for further analysis, evaluation and testing.

8 Conclusions and future work

"I don't have a life,
I have many…"

So says one of the quotes relating to gamers and their love of virtual worlds and exploring them through a character other than their own. McGonigal has described the world of a gamer compared to the one we live in so that it is easy to understand why our 'reality is broken'. Games are better than reality, and it makes sense that collaboration in a game environment would be better than collaborating outside. Of course such a gamified environment is not for everybody, but based on the present number of gamers today (Newzoo, 2014) it is very likely a solution preferable to a large portion of the worlds population. Aristotle wrote that man is by nature a social being (Jowett & Davis, 1908) – we want to collaborate; we seek out social arenas to interact with each other. It seems that the world wants services that deliver such arenas, and promote socialization and collaboration as a natural part of any business model. And even if this companion does not have all the pieces needed, it has certainly identified some very important ones that hold great promise for tomorrow's collaborative gamification services.

8.1 Conclusions

Which brings us back to the question presented in the beginning of this thesis; is it possible to take advantage of gamification in general and collaborative gaming in particular to design collaborative gamified systems? The immediate answer is yes, and based on the data gathered and compared with state of the art gamification frameworks suggest that there is a definite gap to be filled with regards to designing collaborative gamification services. So the games contained components that absolutely indicated how these might have a positive impact on developing such services. And the existing state of the art gamification frameworks work very well for establishing a basic gamified service, adding guidelines and suggest additional components to such services would have a positive outcome for the final solution. CURE as a companion would bridge these gaps and contain components that when added would help promote collaboration among the service users. Thus this thesis firmly believes that '*an approach for gamification systems focusing on user collaboration is possible*', but has the thesis been able to prove that CURE is such an approach?

CURE was created primarily to fill the gaps identified when reviewing existing gamification frameworks and their ability to promote collaboration and add useful components to this end. Even if CURE was unable to completely solve all of the challenges in the existing frameworks, it scores much better in relation to the collaborative components that were initially missing or unclear in the frameworks analyzed in this thesis. When putting the companion to the test the results were positive, but without sufficient data to scientifically validate its ability to defend the hypothesis. This suggests that further testing is recommended to this end.

As a whole the reception of the CURE companion has been very positive. Both case study stakeholders found specific components that they would pursue or look into or develop further. At the same time certain parts of CURE were also considered very complex and not easily accessible to someone unfamiliar the types of games used to help create it. Thus questioning the process of transferring identified data from actual game play into a companion accessible also for those with no or little background in this type of gaming. The result was that some of the components were easier to understand than others, and that those of a more complex nature would require additional investigation and possibly a set of simple examples that could help clarify them.

8.2 Future work

While working with the CURE components and especially the case proposal it became clear that the number of case studies would improve the evaluation of the usefulness of these components. Additional testing of designed collaborative gamification services developed using the CURE companion would also be of great value to validate its overall contribution to the field of gamification.

The introduction of roles in a gamified service would be one of the main components to promote collaboration in addition to the more obvious collaborative components. As both case study companies considered this aspect as positive this would be a natural area of which to initiate such tests.

Rewarding is still a very complicated component but the work done as part of this thesis has potential, but is still complicated and could be adjusted to better match state of the art psychology research into the field of intrinsic and extrinsic motivation and rewarding. Additional feedback on both the companion component as well as testing of a service designed using the companion would also be of value to the further development of the CURE companion.

The stakeholders for both case studies are interested in pursuing the design of a collaborative gamification service. Further and more detailed evaluations, detailed design proposals as well as actual game and user testing will all result in valuable data for the companion as a whole and help the companion evolve and adapt to its specific purpose.

=GAME OVER=

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Appendix 1 - Game diary

Research entry for master thesis 2015

Diary uses variable and event-related diary methodology from June 17 2014 and until February 28 2015. The entries are made on a public website as part of a blog that is copied directly into this document below. Please note that the entries start with the newest entry and go backward in time rather than chronologically.

Expanding the sandbox?

Leave a reply
.comments-link
.entry-header

From Azeroth and onward the World of Warcraft has expanded and grown. The virtual world (or open world/'sandbox') has gone from its two initial continents to now include several and with more on the way. It combines an open environment for its players to explore and interact with, but at the same time it also represents the limitations that the game presents us with. Exploring is a natural part of the game, and most players will at some point try to find their way to places that seem to be out of reach or difficult to reach. To some it is a challenge in itself to find ways to discover areas in the game that are difficult to reach, but so far no 'new dimensions' have been added to game.

If we look at another MMORPG like Neverwinter we find that they have added tools for the players to 'add' content and expand 'the sandbox', and then letting other players rate the experience. And one could say that WoW lets its players introduce some such additions through 'addOns' that lets the players track game data as well as create and adjust the user interface of the game. With the number of such 'addOns' numbering in the 1000s it is clear that this one of the areas where the WoW players are 'innovating' their game. Players also interact in other channels (official forums, guild sites and so on), but it is through the 'addOns' that they create interfaces for player interactions within the game itself. And when it comes to collaborating this is the only area players are given a limited level of freedom to innovate. And looking at the number of such 'addOn' projects and how many of them involve more than one developer it is main area for player innovation.

Now why is this interesting? It shows that players innovate. But it also shows that innovation is exclusive for those willing and able to invest time and effort into developing 'addOns'. What I would like to see is a lowering of the threshold for having players innovate as part of the game beyond the 'addOns'. Make it easier to create ideas, come with suggestions, rate suggestions and actually influence how the game evolves from a game experience perspective. It looks as if Blizzard both enjoys a close relationship with its gamers and that they want to be able to communicate with their players, but at the same time they have not developed any integrated services for this type of interaction.

If I return to Neverwinter and their solution for adding content to their game I really enjoy this concept, but alas it also felt like it failed on achieving what it set out to do. The solution felt a bit too simple and the

created content all to often felt ‘cut off’ from the game and with little or no direct in-game connection. To a certain extent it felt like this part of the game was ‘under construction’ on a permanent basis and that everything within would have an ‘un-finished’ feel to it. Which felt sad as I really loved the concept and idea of having your players add both content and expand on your game world. So how does one continue to improve on such player generated content? I think that most gamers today that invest time in MMORPGs would love to be involved its development if it was made simple enough and easily accessible, and I hope to see this part of such game improve. Large games will always be a collaborative effort where the players are just as much a part of the creation as the actual producers and developers.

.entry-content
This entry was posted in Game diary and tagged addOns, co-creating game content, player innovation, player participatory design on February 28, 2015. Edit
.entry-meta
#post

Long quest or short?

Leave a reply
.comments-link
.entry-header
From the 5 minute Daily-quest to the several weeks long Legendary Cloak quest-line. Having spent multiple hours in World of Warcraft these last few months I can readily say that I have been doing my share of both, and I have found a few elements that I have been experiencing as hindrances rather than entertaining.
Lets start with Daily-quests as these are often how a gaming session would start out, and all in all I do not mind pursuing a few of these to earn some gold, harvest some reputation and scrape together some crafting goods along the way. Saying hi to friends that are online and checking around for events or activities for the evening. Its a good way to kick off the game session, but there are a few drawbacks. First off its the pure number of such quests and elements of the game that are considered obligatory to be able to enter into the more challenging parts of the end game (game activities after hitting the maximum attainable level in the game). Second its the feeling of work where it stops being ‘blissful productivity’ and become repetitive ‘waste’ of time I would have rather spent doing something more fun. My solution in the end has been to pick up a few very quick such quests along with a very limited amount of those that are considered ‘obligatory’ (often needed to be able to enjoy

other parts of the game or as parts of longer quest-lines). Problem in my situation is progress as completing important combinations or sequences of such quests takes me much longer than someone spending most of their time online or spending more time grinding their way through these quests in larger scale.
Next is the longer quest-lines that require weeks of work to complete. I mostly enjoy this method of storytelling with one important hindrance. Game play to me is more like a good movie or a great book and less like an ongoing TV-series, so when I am forced to 'put away the book' or hit 'pause' on my movie I become really annoyed. There are presently two types of game mechanics like this where one is connected to item drops and the other to a virtual currency where there is a limit to how much of this currency you are allowed to earn every week. Going through end game instances hunting for these drops also earns me the possibility for item upgrades and is part of the end game I would be pursuing anyway. So this version of blocking my story I can live with. Its the virtual currency I have trouble with. To fill my weekly quota it is not enough to go through the end game raid instances, you also need to push through a number of Daily-quests and/or heroic dungeons/scenarios. So I grind my way through to reach the cap only to have to repeat the same grind the following week and then again the week after. It is not the first time this type of game mechanics have been introduced into World of Warcraft, but I really hope they can find better and more relevant game activities for us to pursue when working our way through some of the best end game story-lines. Not to mention the feeling of having completed an epic achievement when completing them.
Finally; do not mix PvE and PvP. These are two completely different types of game play and forcing non-PvP gamers to fail their way through numerous PvP-grinds facing massively superior and motivated PvP-players destroys my evening. Many PvE-players might enjoy some PvP to add diversity to the game, but its by choice. I found the solution for the Throne of Thunder where the players could chose to earn their reputation and progress through either PvE- or PvP-quests perfect, but being forced to do PvP as part of the Legendary quest-line was a massive game destroyer for me an I would end up dreading to have to go online to play at all.
.entry-content
This entry was posted in Game diary and tagged daily quests, forced gaming, long quests, PvE vs PvP, questing, short quests on August 21, 2014. Edit
.entry-meta
#post

Bullying and verbal abuse – part II

Leave a reply
.comments-link
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It happened again. And even if I should not be surprised I am a bit frustrated by the logical irrationality of it. Let me try to visualize how I am experiencing this;
World of Warcraft has a built in tool called Looking For Raid that allows you to be more or less randomly put into a group together with 24 other players divided into 3 roles; 2 tanks, 6 healers and 17 DPS (damage dealers). You sign up for this to face challenges in the game that are impossible to take on alone or with just a few of your friends, and it lets you progress your character to a point where you can face these encounters in something called a Flexible Raid which lets you face the same encounters with 9 or more friends rather than randomly selected players.
Initially I find that working together with a team of random gamers sound fun and interesting, both on a game and social level. And for most raid experiences I have this is the case, with of course some raid runs being more fun than others. But then once in a while you get these raids where you have a couple of players that can totally take the fun out of the game, and working on my Master thesis I feel obligated to sit it out to make sure I get the whole experience. I sometimes wonder why I put myself through this, but what it comes down to is that its a part of the game that has a critical negative impact on the cooperative efforts of the players and there are no real game mechanics in play to counter them.
So let us take a random example; one or more players are for one reason or the other performing below the standards of an 'elitist' players expectations. To the point where this 'elitist' verbally goes out and refers to these players as 'stupid' or 'retards', tells people to 'shut up' or throws around random negative comments. This might be considered an outburst of frustration, and when it gets thrown out as a one-time comment it not really an issue. Its when it becomes a continuous rant in the raid chat channel I have trouble understanding the logic of it all. If you have freely chosen to join a randomly generated raid like this, and you feel that the raid you have been placed in is composed of 'retards' it becomes problematic for me that this person chooses to stay. 'Retard' in this context are obviously not smart people in this persons mind, and as such one can not expect them to perform in an intelligent manner. So these players will continue to perform as 'retards' and are by definition here too 'stupid' to leave. The 'elitist' on the other hand, whom we should think would be both an smart and able player, chooses to stay. With the 'retards' that are performing badly and ruining the game. And as they are 'retards' there is nothing he can say or do that is likely to make

them any better – they are as stated ‘retarded’ and will continue to ‘fuck things up’ to quote one such player. No here is what I do not get; why stay? If you choose to stay with this group of ‘retards’ you can not exactly be too bright either now can you? Or maybe these people have an irrational faith in ‘Lady Luck’ that will override the ‘retards’ incompetence?

Add to this these ‘elitists’ seem to continue to join the randomly generated groups as they often refer to the presence of such ‘retards’ as common in these kinds of raids. So they join a raid that is highly likely to contain a large number of ‘retards’ that will play completely ‘incompetent’? I do not care how good this player is. That kind of logic is to me ‘retarded’ in itself. So I end up sitting in a raid with a number of ‘incompetent retards’ that are annoying ‘the crap’ out of some highly ‘competent retards’ that are just too ‘retarded’ to find an alternative to joining a raid that is highly likely to contain a large number of ‘incompetent retards’. And even worse; these ‘competent retards’ choose to stay in these raids and just pour out verbal abuse in the chat channel rather than hopping out and waiting for the next raid to pop hoping for a few less ‘retards’. Of course now that I have called them ‘retards’ as well it makes complete sense that they do not leave. But it does not make it any more fun to get stuck in a group with one or more of them. I frankly prefer the silent ‘incompetent’ players. As for my thesis – I definitely need a full range of game mechanics to help block/buffer or remove this kind of behavior, but alas the game itself does not have any such mechanics yet and I am forced to look elsewhere.

.entry-content

This entry was posted in Game diary and tagged abusive behavior in games, game trolling, game trolls, raid bullying, verbal abuse in raids on August 14, 2014. Edit

.entry-meta

#post

Behavior in raids – the final chapter

Leave a reply

.comments-link

.entry-header

If we take the two last items of group dynamics that were part of the webpage referred to in the initial article they touch on the topics of rumors/topics of communication among raid members as well as group competition.

Raid communication can be divided into three main categories; pre-raid communication, in-raid communication and post-raid communication. Each of these again divided into directions from leadership, game related

topics and social chatter. For quick examples; a pre-raid direction might be a raid invite, an in-game social chatter could be a joke between boss fights and a post-raid game related topic could be player suggestion for a change in strategy for a boss fight. You will find that the participants in each of the categories as well are their sub-categories will contain a different set of members, and whom you find in each group can help you understand a bit more of the groups social dynamics. Naturally it is important to understand whom gets along, who does not and who are just silently sitting in a corner. People that get along are more likely to 'go that extra mile' to help out someone they relate to. People that do not get along a more like to 'add some effort' in a competitive context. And people that are just silent will often need very specific details and orders to do anything beyond what they normally do. And if your raid goes silent its never a good sign…

Now we have mentioned individual competitions, but it scales once you add another group to it. Either a DPS-race between melee and ranged DPS or a progress race with another raiding guild. Once we step from individual to group competition we are also 'upping the ante' if both groups believe they can out-perform the other, or completely destroy it if either group feels that the competition is rigged or beyond their reach. In short its a tool in the raid leaders tool box, but one that requires a bit of pre-analysis to make proper use of. I have to admit that I have also been inspired by raid guild progress competition on an individual level, or even on a class progress level for that matter, but to make this effect contagious you need the whole group believe it is possible to 'win'. Having a goal is one thing, adding some competition makes the goal more alive as a target. And whether you love to win or just enjoy achieving a goal its an added value to help bring your raid members together as a team.

In the end its all about having fun. Remember that above all else. If you are not having fun you are not doing it right, or you should be doing something else. Continuing to 'not have fun' just seems like a bad idea…

.entry-content

This entry was posted in Game diary and tagged behavior in raids, competition, enjoying the game, fun, guild competition, raid communication, raid group competition on August 14, 2014. Edit

.entry-meta

#post

Behavior in raids – progressing or regressing as a group

Leave a reply

.comments-link

.entry-header
There are two side to this take on group dynamics, one positive and one negative. One set the stage for increased performance of the group members. As the result of internal competition and performance tracking or just that the presence of others help facilitate their own ability to perform. The other involves 'hiding in plain sight' while letting the rest of the team do the job. Positive tracking seems to be the key to make sure that all pull their weight with emphasis on the positive. Its ok to have a bad day, just not every day there is a raid planned.
Personally I subscribe to the Pareto Principle (80/20) for analyzing raid performances, and in more ways than one. Lets look at some examples of how this might be useful;
1. No matter how awesome your raid group is you will always have a someone that is having a less than perfect day. Or you can turn it around and saying that there will always be a few that are having a great day and performing above and beyond what they normally would. No matter which version of the Pareto Principle you make use of its all about expecting the balance of your group to be different from raid to raid. The number one DPS might always top the DPS trackers, but gap to the number two is likely to be different, and sometimes this has nothing to do with the game itself. Being able to identify variations like this will help you adjust strategies accordingly.
2. When given the choice for multiple strategies it is always difficult to decide if one should spend five wipes on the most promising of them or try out five different strategies and see how they pan out and then chose the one that worked best. Or test two strategies two times. There are three parts to this way of deciding on strategies. First is researching and analyzing different strategies, both the ones you can find online and those you draw up yourself. Second is about knowing your team and understanding which of these strategies are likely to work or fail. And finally how many wipes before you change strategy. The combination of these will ensure that wiping does not feel like you are running constantly into a wall hoping it will fall over due to some miracle of random luck…
3. The final example that I find important to mention is when everything is going wrong. Often when things seem to be failing all over the place there are a very few reasons for it; 20% of the errors being made are resulting in 80% of what is going wrong. The trick is to identify and fixing those key errors or if this is not an option its time to change the chosen strategy itself.
In an earlier post we touched on the topic of conformation in groups, and so far it seems that high performance creates better players as much as a low performance results in massive slacking and crappy performances. I have to admit to being a 'victim' of both; if a raid has set my mood on a

negative curve I am more likely to be counter productive and at the same time I see that high performance encourages me to push myself harder and increase my game awareness.
So to make some conclusions; raiding is rarely WYSIWYG, and as much as there are no real clear black and white there is no pure gray either. The Pareto Principle mainly tries to focus on the fact that there is always a balance, but that it is rarely 1:1. Some things you can track with addOns, some can be tracked by just knowing your players, but some things are left open to pure intuition or even clairvoyance if you are a believer in such. And the more present something good or bad is in any given raid the more likely it is to breed more of the same.
.entry-content
This entry was posted in Game diary and tagged behavior in raids, group dynamics for raiding, raid progression, raid regression, The Pareto Principle for raiding on August 14, 2014. Edit
.entry-meta
#post

Behavior in raids – bullying and verbal abuse

Leave a reply
.comments-link
.entry-header
Bullying seems to be all too common among gamers today as well as all sorts of verbal abuse. Anonymity is like a motivator to release all kinds of venom in gaming chat channels and it feels like it has gotten steadily worse and worse. Luckily the majority of gamers prefer to avoid this kind of behavior, and I often experience that players will also speak up against this kind of abuse.
Now I can see many reasons for why people have all kinds of emotional outbursts while playing, but what I do not get is what they hope to achieve by verbally attacking someone for one reason or the other. It makes no sense to me to call someone a ‘retard’ in the hopes that they will perform better or act in a way more suitable for my personal game play experience. Considering my post regarding ‘raid rules’ this behavior just adds up and I have yet to see it be constructive or productive. In short it seems like complaining about the stupidity and ‘retardity’ of others is in itself just as stupid.
On the opposite side when looking at the more focused groups that have a high level of progress you will find these rules change somewhat. It is a commonly used management style to run a strict team with a very present level of verbal abuse in the form on direct micro-management not unlike what one might see/experience as part of military training. Making use of such a management style is no guarantee for success as it also holds a

fine balance for when its productive and when it is absolutely not. But when it works it seems fair to say that it does so quite brilliantly.
In a different context this kind of behavior might be a part of the humorous tone of social interactions in a raid group, and in this case it is important to be aware of unwritten rules of how these joke and puns are thrown around. Knowing with whom you can joke, what jokes are ok and have a positive effect on the mood of the raid is something that is part of the initiation rites of most groups. This social interaction in between the focused boss fights is an important part of a raid experience and helps keep the game entertaining, fun and social.
.entry-content
This entry was posted in Game diary and tagged behavior in raids, bullying, name calling, raid behavior, raids, verbal abuse on August 12, 2014. Edit
.entry-meta
#post
Behavior in raids – leadership
Leave a reply
.comments-link
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Becoming a raid leader is not role one can just ‘take’, its a role that first requires you to conform. Just like the players will conform to their roles and their personality type the leader must first find his place in the group to be able to lead.
In a LFR the time needed to ‘hold’ a leading role is short, but for a guild raid group a leader will need time to be able to have the group work together as a team. The difference primarily based on the level of ‘facerolling’ (lack of complexity) that is possible in a LFR where mistakes are much easily ‘forgiven’ and the boss mechanics can be ‘ignored’ by some and have the raid still come out victorious. From the next level and onward such mistakes have much ‘deadlier’ consequences, and when you reach the Heroic level you also face additional mechanics that do not exist in the other levels and where there is no room for ‘mistakes’.
Even if the basic mechanics of an encounter is more or less the same for all, it becomes unique for each combination of players that take it on. And its up to the raid leader to ‘mold’ his team into a team that is ready and able to succeed. Overcoming these challenges is not just a combination of individual efforts, it is just as much how they are able to work as a team and counter any flaws or assist in enhancing positive abilities that each individual player might display during different challenges. Where each player must understand both the game mechanics for the encounter as well as those for their characters role, its the leaders

role to puzzle all of this together on both a game and social level and bring the victory home.
So make sure you groom your aspiring leaders – they are a rare breed, and the good ones even more so. At the same time it seems that good leaders always bring with them a set of flaws. So the question becomes this; does the raids successes outweigh the flaws of the leader?
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This entry was posted in Game diary and tagged behavior in raids, raid leadership, raids on August 12, 2014. Edit
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Altoholics and randomness

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When playing a MMORPG I am rarely able to stick to just one character. It feels like I am missing out on what the game has to offer if I do, so even before I have reached the level cap (the maximum level a character can have in the game) on my first 'game toon' I have created at least one more that I have tried out to make sure that the 'toon' I am focusing on is the right one. When starting out a game this mostly works out nicely.
But playing the same character with the same game mechanics doing the same kind of quests over and over can easily kill the joy of any game MMOPRG. And this is when 'that other toon' suddenly becomes a 'game savior' by letting me diversify my game experience by alternating a little between the different characters. This way I am able to keep the game interesting and it also lets me explore what the game has to offer in a broader sense.
Then we start 'capping' characters. And this is where the random element in the game starts messing things up. When I first returned to WoW (World of Warcraft) last year after a long break my plan was to avoid some of my original characters to make the game feel 'new'. Initially this worked out quite well, but as the game progressed the altoholic in me took over and in due time all of my 'toons' got capped and opened up the door for 'end gaming' or 'raiding', which is also the part of the game I enjoy most. To avoid playing all of my characters at the same time I kept trying to focus on a few of them and preferably characters with focus on different 'roles' in the game (healer/tank/DPS). I would have preferred to make this choice myself, but this is where the random element appears and the game chooses for me. How does the game choose? Well, to be able to progress in the game and face new and more difficult raiding

challenges I need to upgrade the ‘gear’ my characters have. And the ‘gear’ is randomly generated as ‘loot’ from these raid challenges and are largely out of my control. From a statistical point of view I know this is not the truth, but it feels like when I try to focus on getting certain items for a specific character I enjoy playing, they seem to have completely disappeared from the game.
When faced with this frustration over several gaming sessions in a row it is easy to pop over to one of my ‘alts’ to ‘calm down’ only to have all of the best possible items drop for this ‘toon’ without focusing on it at all. So suddenly the only character I can actually continue progressing with is a ‘side kick’ that I originally had not intended on playing that much. The randomness of loot from boss challenges has made the choice for me. And last night I was wondering if this is an intended element of the game or if this is just a random result of how certain game mechanics work together? The reason was of course that I have been trying desperately to ‘gear up’ one character and failing, when suddenly a character I have only been playing one the side ended up with some amazing gear that suddenly makes this character my best candidate for further progress in the game.
Naturally this is a situation that becomes even more prominent with the LFR (Looking for raid) tool that allows anyone to be teamed up randomly to take on ‘raid challenges’. Its easier for me to just sign up for a ‘raid event’ on any of the game characters that I play, and the ‘loot’ I might get is random. I could get loads and I could get nothing.
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This entry was posted in Game diary and tagged altoholic, random loot on June 23, 2014. Edit
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Time for game event reset

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In World of Warcraft Wednesday is the day when all of the raid instances reset. It is also the day when your earning potential for the raid currency Valor resets. In short; all the challenges you overcame last week are now back in play to be confronted again, and you get to earn more Valor so you can upgrade your virtual gear or buy some new gear. Its with mixed feelings I log in on Wednesdays as I am part happy to be able to ‘continue’ advancing my favorite character, but at the same time its a hassle to have to work my way through loads of the same content as the week before…

Luckily this concept with weekly resets is better than the Daily quests; quests that add some kind of game value to your character that reset every night to be repeat again – and again – and again the following day. Some of these you only do to reach some kind of goal in the game, but some of them are endless and you can keep doing them until it drives you crazy. To counter this repetitiveness they have added a pool of quests that rotate to let you have some variation to the quests you 'have' to do, but it still feels a lot like unrewarding work to me and I am quite certain that I do not feel that these Daily quests add anything positive to the game, especially since most of these quests are mostly solo activities that turns this MMORPG (Massively Multiplayer Online Role-Playing Game) into a MOQGG (Massive Online Quest Grinder Game). I truly hope the game designers out there are working hard to invent something new, something more meaningful and fun, than these tedious Daily quests that are driving me nuts and killing the fun of playing.
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This entry was posted in Game diary and tagged game event reset, raid reset on June 19, 2014. Edit
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My first collaborative game experiences

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It is hard to state what my first collaborative game experience was as it depends on how you define it. Personally I subscribe to looking at it from two perspectives; one involving collaboration outside the game itself and one that involves the in-game multiplayer experience we have grown accustomed to today. Even today I feel both are equally relevant, but naturally the in-game collaborative game experience dominates my gaming schedule today.
My first memory of collaborative gaming was with the 1982 Atari classic Choplifter. A friend taught me the basic concepts of the game, and then after this we had a part competitive and part collaborative relationship when playing. Competitive regarding score and progress, but at the same time watching each other and discussion problematic elements of the game and trying to solve them as a team. This collaboration introduced a social aspect to the game even if at any given time only one of us was actually playing.
A few years went by and I got my first computer, a Commodore 64, and with it all of the early games of the 80s. This included the game Bruce Lee (1983, Datasoft Inc.) which became my next collaborative memory.

Conceptually the same type of game experience as with Choplifter, but this time the collaboration ended with a complete success and the game was completed. Alas completing the game just meant you would start again from the beginning, but it still felt ‘special’ to have made it to ‘the end’.
Shortly after the success of Bruce Lee we discovered M.U.L.E and everything changed. While competitive at its core – naturally you want to win – it also included options for collaboration. Both keeping the ‘colony’ alive as well as making sure that the computer did not win created a window for a collaborative gaming experience, and many hours were invested in this game at the time. Even if it would take some years until we could sit at home and enjoy a multiplayer experience this game will always be my first.
I truly believe that a good game should include a social element. And even if you play the game alone the experience can be enhanced by having someone to share it with. That said, even outside my gaming I prefer collaboration to competition. When comparing the element of winning versus participation I believe that participation will always end up as the most important of the two. Given this, combined with the fact that it feels better to have everybody ‘win’ and at the same time avoid forcing anybody to ‘loose’, games the focus on collaborative game play are just more interesting. And of course it never hurts to be able to grab a beer with your collaborators to get some time away from the computer screen…
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This entry was posted in Game diary and tagged collaborative gaming, multiplayer experience on June 18, 2014. Edit
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Positive goal oriented communication enhances performance?

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This weekend I had two experiences with LFR (Looking for Raid) in WoW (World of Warcraft). LFR is an in-game tool that lets you sign up for a raid event with 24 other players facing some of the tougher challenges in the game. Both experiences relate to what happens once a raid is unable to handle the game challenges they encounter.
The first episode happened in a raid where there was were little communication going on between the players, and the little communication that was there was either casual or negative. The moment

the raid started to have performance problems or wiping as it is often called, the negative comments in the raid chat channel increased and players were looking for someone to blame rather than looking for solutions. As the raid had no established leadership and no one trying to hold the team motivated, annoyed players left the raid rather than trying to collaborate and look for a solution. This is where episode two becomes interesting. Later during the same weekend in another raid the same level of chatter was going on, but this time there were also a few people trying to lead the group. The raid encountered the same performance problems as in the first episode, but due to the presence of leadership very few players decided to leave. The presence of leadership analyzing the problem and working on finding solutions kept most players focused and motivated, and having these solutions solving the problems kept the raid from loosing any more players as the raid progressed.

It seems that even the smallest presence of leadership or guidance is enough to motivate a team to continue working on overcoming problematic challenges that the game throws at them. For collaboration to work this part of the collaborative effort must be kept present and positive. For LFR in WoW this is a role that one or more players need to perform, but it should be possible to introduce mechanics in the game that would help motivate players into taking on these types of responsibilities. Motivational game mechanics that create a solid communication platform for positive social interactions is an interesting design challenge for MMORPGs today, but so far I have yet to see any attempts on solving this aspect of game play.

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This entry was posted in Game diary and tagged LFR, raid communication, raid leadership, wiping on June 17, 2014. Edit

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Why write a game diary?

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When I started out working with my Master thesis it was largely inspired by my long history as a gamer. It was also part of my initial hypothesis that game design patterns can be identified and transferred into a gamified system, and part of my initial research was looking into games that contained some form of collaborative game experience. After having browsed through several different types of games I landed on using a combination of MMORPG (Massive Multiplayer Online Roleplaying Game) and RTS (Real Time Strategy) to look for the earlier mentioned game design patterns. To get started I chose three games that each contained game design elements I believed could be relevant to my thesis; EVE, World of Warcraft and Civilization V.

Why did I choose these three? EVE was chosen due to its massive space battles that involves collaborative game play at an unprecedented scale. According to an article in Wired more than 7500 gamers participated in the event making it a very interesting game to analyze. I have tried the game, but have no recent game play to refer to and my documentation for my thesis here is based on interviews with active players. World of Warcraft was chosen both for its popularity as well as its collaborative PvE (Player versus Environment where the environment is the virtual reality of the game world and its game challenges) team game play with focus on raids (large teams of 10 or 25 players). An enormous number of gamers join up in guilds to spend several hours every week facing the raid challenges in highly efficient teams where collaboration is a key element to succeed. Finally I spent some time playing Civilization V for its turn based game play. I found this interesting since a turn based gamified solution for open innovation would allow for more flexible collaboration that would not require the players to be online at the same time to interact with each other.

I spent time from November 2013 and until the end of February 2014 to look for relevant game design patterns, and during march I found three game elements that I would work with to design a prototype to test later this year. These were user profiles, game activities and ranking, each representing core game elements that I believe to be important for an

open innovation gamification application. Since then the design process has included both participatory design workshops as well a several hours of actual game play. Both have been important sources of inspiration for the design work and contributed with key findings to help improve and innovate the prototype. To document how the game play has contributed to the design process I have created this game diary that will contain entries referring to actual game play experiences that have yielded interesting findings or input to the design process. I am quite sure I will not be able to make use of the data from these entries, but hopefully that will be something I will be able to work on later.

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This entry was posted in Game diary on June 17, 2014. Edit